

# AMERICAN VETERINARY REVIEW.

EDITED AND PUBLISHED MONTHLY BY

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## CONTENTS.

|   | PAGE |   | PAGE |
|---|------|---|------|
| Editorial—European Chronicles.....  | 517  | inla in the Horse.—Fatal Hæmorrhage   |      |
| Government Inspection of Meats.....   | 529  | from Genitals in a Cow—Peculiar Ab-   |      |
| The Association of Faculties.....   | 531  | normality of the Pavillon—Fracture  |      |
| All Roads Lead to New Haven.....  | 532  | of the Radius and Cubitus in a Preg-  |      |
| Dr. Salmon Goes to Uruguay.....   | 532  | nant Heifer.  |      |
| Original Articles.—Symptomatic Anthrax. By Charles F. Dawson.....   | 533  | German Review.....  | 590  |
| Clinical Examination of the Blood of Normal Cattle. By W. W. Dimock and M. C. Thompson.....   | 553  | Placentophagia.—Beef Measles in Milk and Sucking Calves.  |      |
| The Official Veterinarian at Horse Shows. By F. C. Grenside.....  | 560  | The New Meat Inspection Law.....  | 594  |
| Abortion in Cows. By David Roberts.....   | 567  | Correspondence.....   | 603  |
| Reports of Cases.—Paralysis of the Peroneus Nerve. By C. M. Haring.....   | 573  | Army Veterinary Department.....   | 607  |
| Idiosyncrasy or Overdose. By W. E. A. Wyman.....  | 574  | Society Meetings.....   | 608  |
| Double Impregnation by Different Species. By C. H. Gaines.....  | 574  | American Veterinary Medical Association.—Missouri Valley Veterinary Association.—Minnesota Veterinary Medical Association.—New York State Veterinary Medical Society—Pennsylvania State Veterinary Medical Association. |      |
| Surgical Items.....   | 576  | News and Items.....   | 637  |
| Belgian Review.....   | 587  | Veterinary Medical Association Meetings.....  | 643  |
| Vermiform Aneurisms and Consecutive Thrombosis.—Observations of an Enzootic Outbreak of Periodic Ophthalmia in the Horse.—Fatal Hæmorrhage from Genitals in a Cow—Peculiar Abnormality of the Pavillon—Fracture of the Radius and Cubitus in a Pregnant Heifer. |      | Publishers' Department.....   | 644  |

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# AMERICAN VETERINARY REVIEW.

AUGUST, 1906.

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*Correspondents will please note the change in address of Dr. Roscoe R. Bell, from Seventh Avenue and Union Street, to 710 East Second Street, Borough of Brooklyn, New York City.*

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## EDITORIAL.

### EUROPEAN CHRONICLES.

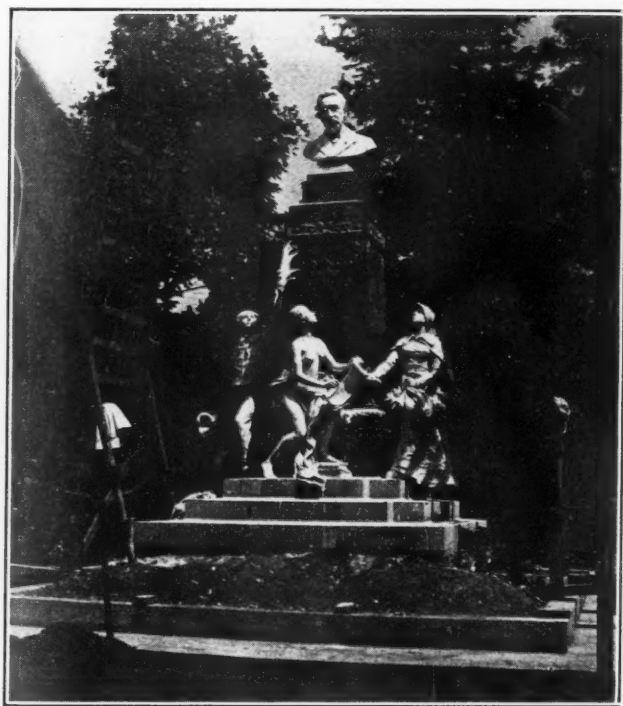
PARIS, FRANCE, June 24, 1906.

THE UNVEILING OF THE MONUMENT TO NOCARD.—I have just returned from Alfort, and want the REVIEW to have this news as quickly as possible and as early as it will be published in Europe. As I wrote our American friends some time ago, to-day was selected for the ceremony of unveiling the Nocard Monument.

If the subscription has been international, and if funds have been contributed from every part of the world, the representation from veterinarians has not been. Thousands were present, of course; but they were French veterinarians. Dr. Lydtin, of Baden, was the official delegate from German veterinary societies; Dr. Perroncito, from Italy; a few from Belgium were also there—but those were all. Letters of excuse, however, were many. Our esteemed friend, Dr. William Dougherty, of Baltimore, and myself took upon ourselves to represent the United States—not officially, however. American veterinarians contributed too handsomely to the fund to have their admiration for Nocard stop there.

The ceremony resembled all similar occasions. Handsome decorations, plenty of good music, very large attendance, and with all that comparatively fine weather, made the whole thing a perfect success. There were several speeches made. Prof.

Chauveau, although eighty years old, and of delicate health, delivered a masterly review of the work done by Nocard. Prof. Leclainche, of Toulouse, as one of his scholars and co-workers; Dr. Roux, of Pasteur Institute, as one of his intimate friends, and several others, told the audience many peculiarities of the life of the subject of the ceremony. The Secretary of Agriculture, who represented the Government of the Republic, took advantage of the ceremony to deliver several decorations.



It is unnecessary for me to review in this short notice the speeches that were made; I may do so later on. I enclose a view of the Monument, which has been placed in the *Cour d'honneur* of the Alfort School, in company with the statues of Bourgelat and Henri Bouley.

\* \* \*

CONCLUSIONS FROM THE MELUN EXPERIMENTS.—The last reports on the experiments at Melun to test von Behring's



bovovaccine has been made public, and the following scientific conclusions have been presented.

(1.) A first mild and cured attack of tuberculosis confers to the organism a very marked, but incomplete, resistance to a new infection.

(2.) Vaccination by Behring's method is harmless for animals kept, during the time necessary for immunization and the six consecutive weeks, away from all accidental infection.

(3.) Vaccination permits the animals to resist for several months natural contagion by cohabitation with infected animals.

(4.) The method grants a resistance truly great to the most severe modes of experimental infection.

(5.) The immunizing bacilli used by Behring constitute true vaccines. Indeed, they are resorbed in subjects kept in media free from contamination, without giving rise to pulmonary lesion, or its annexes, lymphatic glands, and without leaving virulent remains, as observed by the authors who have used as vaccine human bacilli insufficiently attenuated.

(6.) Perfect emulsion of the vaccine is essential for the innocuity of the operation.

(7.) It is indicated not to vaccinate any subject which presents signs of pulmonary trouble.

(8.) The immunity conferred by Behring's method against tuberculosis is not absolute; as for all bacterian diseases, it can be overcome by the inoculation of a strong dose of virus.

(9.) The persistent presence in bronchial glands of the vaccinated animals of virulent bacilli introduced during the control tests cannot be considered as against the method; the bacilli of Koch, even killed by various processes, are very slow to resorb.

(10.) These conclusions are limited only to the Melun experiments, which, after all, are only a large laboratory test, and they cannot extend to interference in an infected centre.

The report of the complete experiment has been published, and I will be glad to send a copy to any of our friends who may ask for it.

MILK AND TUBERCULOSIS AGAIN.—Dr. A. Calmette, the Director of the Pasteur Institute of Lille, in France, has just claimed a discovery which is causing a certain sensation. Up to the present time it is said that milk is not dangerous providing it is sterilized. Boiling it at 100 degrees for five or six minutes seems to be the best precaution against possible infection with tuberculosis. Late experiments by Dr. Calmette and Mr. Breton upset this idea. In a communication made to the Academie des Sciences, Dr. C. declared that after years of study and repeated experiment, he came to the conclusion that the ingestion of tuberculous products, even when sterilized by heat, was dangerous for subjects already affected by tuberculosis, and could be injurious for animals free from that disease. The experiments were conducted on guinea-pigs. Six of these eat dried bacilli; six others received injections of the same bacilli into the peritoneum. Two weeks after, they received in six meals, at intervals of five days, five milligrammes of bovine bacilli, at each time, heated at 100 degrees during five minutes, and mixed with cut-up carrots. All the pigs of the first series lost flesh rapidly and died on an average in forty-one days. Those that had received injections died in thirty-one days. Among the pigs used as witnesses, two died in thirty-seven days, the others lost considerable flesh.

Consequently, the repeated ingestion of small quantities of tuberculous bacilli, killed by heat, hastens death considerably, as would also the repeated injection of small doses of tuberculin. With healthy animals those dead bacilli give rise sometimes to serious disorders absolutely similar to those observed when non-tuberculous animals are made to eat small doses of tuberculin.

Final conclusion: Milk, even sterilized, must be prohibited from use for food with man, and especially for children, if it comes from tuberculous cows. Sterilization is powerless in removing all danger. Milk containing dead tuberculous bacilli stimulates the development of tuberculosis in those that are affected with it.

THE ENTRANCE OF AIR INTO VEINS.—I have recently read an extract from the *Archiv für Wissenschaftliche und Praktische Tierheilkunde* relating to this subject by Dr. Richter, of the Dresden Veterinary School, which may be considered as one of actual interest at present, when intravenous injections have entered the domain of daily practice. Many experiments have already been made, and still opinions differ very much as to the result of this accident. For instance, Kitt and Vogel fear the entrance of a few bubbles of air into a syringe of Pravaz. For Moeller a small quantity of air is without danger, although sometimes it is followed by death; and, again, even very large quantities are harmless.

Bayer doubts a fatal result, and Hare does not believe that death ever takes place.

To solve the question, experiments are necessary. Cases of death by æramia have been often recorded. The experiments of Wepfer, as it is called, is but a manner of killing animals by introduction of air into their veins, and many are the authors who have recommended it—Chabert, Rey, Peuch, Vachetta, Passet, and others. Dr. Richter has also experimented, first upon eleven horses. In the exposed jugular he introduced a rubber tube, through which he blew his own breath by two or three insufflations. The effect was positive in all the cases; his eleven horses died, and since then he has killed in a similar way four horses, three dogs and seven rabbits. "I consider," says Dr. Richter, "as sufficiently proved that the entrance of air into veins can be followed by death."

\* \* \*

In the presence of such authority, I hesitate to mention, however, only one experiment that I made many years ago. I had read records of fatal cases following the accident and wanted to see the effects. I had a horse to destroy. I opened his jugular, introduced a blow pipe, and blew into it a small quantity of air. I waited; no result—no change. I renewed the insufflations, and kept them up for a short time. It gave rise, of course, to great general disturbance of respiration and

circulation, but after several hours I was obliged to kill the poor brute, which was suffering greatly.

Was the first step of my experiment imperfect, and the quantity of air insufficient? Was it necessary that a larger quantity be introduced? What quantity of air may cause death? Dr. Richter answers. He has made experiments upon 40 horses, injecting with the syringe of Pravaz of 40 c.c. size, 10, 30, 40, 100, 200 c.c., etc., without producing alarming symptoms, in 21 horses. In others he injected 1,000 c.c. without interruption. One only exhibited some disturbance of its equilibrium. The conclusion is that that quantity (1,000 c.c.) is the extreme dangerous limit. If the injection is more than one litre, the animals become sick and *surely die after the insufflation of eight litres.*

\* \* \*

What is the cause of death after the entrance of air in a vein? For many, the heart is dead. But Vachetta, Passet, Wolf and others have seen the heart beating after death. Panum, Ribbert, Hauer, Passet, Wolf, have observed that the heart is distended by foaming blood, and also the pulmonary artery. *The interference in the circulation of that artery and its ramifications by air mixed with the blood soon gives rise to the complete arrest of the blood, and is the cause of death,* says Dr. Richter. Yet another supposition might be entertained, viz.: *a gaseous embolus of the arteries of the brain: a possibility which can be admitted, not only in the bloodvessels of the brain, but also in those of the spinal cord, of the heart, etc., and yet is realizable only when more than one litre of air has been injected.* Dr. R. *considers the lung as constituting the natural protection of the organism against air entering the veins, which would constitute for the organism a great danger if it was not "filtered out" in the lung.*

\* \* \*

The therapy against gaseous emboli is powerless. Venesection seems to have succeeded in a few cases. Prophylaxy, by careful attention in the steps of a surgical operation to



prevent the introduction of air, is the important question.

\* \* \*

CHANGES IN ANIMAL TEMPERATURE UNDER VARIOUS INFLUENCES.—Numerous are the observations that have been recorded upon the changes of animal temperature under various influences. Dr. Richter, of Dresden, has made known a new series of researches, which have been published in several European scientific organs. The conclusions resumed in Leclainche's *Revue* are as follows :

- (1.) Any movement gives rise to an elevation of temperature.
- (2.) The surrounding temperature being at  $21^{\circ}\text{C}$ ., after a long walk, a rise maxima of  $0.4^{\circ}$  is an average obtained after 48 minutes.
- (3.) During a trot, the thermometer rises slightly during the first 15 minutes; it increases after 25 to its maxima up to  $1.55^{\circ}$ , the surrounding temperature being  $18.5^{\circ}$ .
- (4.) The highest elevation, observed after a long trot, has been  $2.5^{\circ}$ .
- (5.) After a long exercise, either walking or trotting, the temperature reaches its highest point more or less rapidly, in general to run down afterwards.
- (6.) The proportion of the hyperthermies observed after walking and trotting is as 1 : 7.5.
- (7.) After a walking exercise of 60 to 90 minutes, the temperature rises gradually, to return to normal about 75 minutes after.
- (8.) After a trot of 20 to 30 minutes, the temperature runs down rapidly during the first quarter of an hour, and slower afterwards, to return to normal on an average in two hours.
- (9.) The duration of the running down of the temperature is not in proportion to its rising.
- (10.) Sex, breed, or age, have no influence upon the rising or dropping of the temperature.
- (11.) There is no difference in the thermic variation between healthy horses and those that suffer from surgical diseases.

(12.) In horses affected with diseases of the respiratory apparatus, except heaves, the hyperthermia after a trot goes one-tenth of a degree higher than with sound horses. After two hours' rest the temperature is still higher than the normal by an average of  $0.15^{\circ}$  in 40 per cent. of the diseased animals.

(13.) There is no difference in the variations between healthy horses and those which have heaves.

(14.) With these last, the dropping of the temperature is very slow: in the first quarter of an hour it is only one-eighth of the rising; after two hours, the temperature is still  $0.4^{\circ}$  above the normal, and  $0.35^{\circ}$  after two hours and a half.

(15.) The quickest dropping observed in emphysematous horses has been one hour and three-quarters.

(16.) In horses suffering with immobility, the rise after a trot is  $0.45^{\circ}$  less than in healthy animals.

(17.) A sub-febrile temperature of  $38.5^{\circ}$  is reached in dummy horses after 15 minutes' rest and in about three-quarters of an hour in all others.

\* \* \*

A "DUNG-BAG" FOR CITY HORSES.—Years ago a man came to my office with an idea which he thought he would patent, and he wanted my opinion on his invention. This consisted in the application of a basket to receive the droppings of a horse while at work, with the main object of having the streets of New York kept cleaner. The idea might be considered as good, but the plan was simply horrid—the basket secured under the animal's tail by some means or other, I do not now remember.

I merely recall this incident to show that, after all, the old proverb finds daily application: "there is nothing new under the sun." Our contemporary, the *Veterinary News*, in its issue of May 5, under the title of "The Cleanliness of Our Public Thoroughfares," calls the attention of its readers to an arrangement having the same object, and is the invention of Dr. J. A. Calantarients, of Scarborough. "It consists of a suitable receiver or dung-trap fixed to some convenient part of the

vehicle, as the axle of the front wheels, for example, and a shoot or collector of some flexible waterproof material attached at one end to the breech-strap and at the other end to an outlet tube extending from the top of the receiver in the direction of the animal's breech. The receiver or dung-trap contains an open-topped drawer or removable lining, which can be withdrawn and replaced by its handle at the back of the receiver. The shoot or collector has an expanded trough-like shape near the breech just large enough to catch the dung, but narrows down to the diameter of the inlet tube. . . . Whether the animal is standing or running, its dung is caught by the shoot or collector and travels by gravity along the same into the removable drawer, which can be removed, emptied and cleaned periodically. There is a valvular arrangement at the inlet tube of the receiver to allow the dung to pass freely into the receiver, but to prevent any smell coming out."

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REEKS' "DISEASES OF THE HORSE'S FOOT."—I had read in the English veterinary journals notices and reviews of a new work, "Diseases of the Horse's Foot," by H. C. Reeks, F.R.C. V.S., and, ignorant that a copy had been sent to my co-editor for review in our monthly, I wrote Mr. Alex. Eger, the American publisher, for a copy of the book, which he very kindly sent to me, and for which I here thank him. In the meantime, the REVIEW for April reached my office, and there also I read the pompous article offered to our readers. I was naturally much interested, and regretted my demand upon the Chicago publisher, when the book came a few days later. One can imagine how I examined it. I will be frank: I was disappointed. Not that the book is bad—far from it; but I have failed to discover in it the wonderful superiority I expected, and all I could say when I got through was, as the English reviewers had said: It is an "interesting and instructive compilation," presented "under the form of a very useful, practical and serviceable manual." It is well arranged, has some good illustrations, and improves the descriptions by the records of a

few interesting cases. There is, however, among the plates one (Fig. 43) which is puzzling to me. I cannot very well see how this method of adjusting a side-line preparatory to fixing the hind leg upon the fore can be carried out; if it is, it must be with much more difficulty than with the methods described in other classical works. But, perhaps the plate is badly made. Yet the description agrees with it. However, it is not of very great importance, and can scarcely diminish the value of the work, for which the author deserves credit.

\* \* \*

A NEW WORK ON THE EXTERIOR OF THE HORSE.—Every member of the veterinary profession, and, I might add, every connoisseur of horses in America, knows of that excellent work, "The Exterior of the Horse," the translation that Prof. S. J. J. Harger, of Philadelphia, made of the French work of Goubaux and Barrier. It would seem that this magistral work would have reached, as a classical book, the boundaries of excellency to which one could pretend, and that no other work on the subject could be published. It seems not. Why? Because, although superior as it is, it is a work to which all interested in horses must refer, and, yet, on account of its size, it is not sufficiently didactic, and, above all, because it is limited to the study of the external forms of the horse, and ignores the other principal domestic mammalia, with which the veterinarian ought to be as familiar as with the horse.

A new work has just been issued, by the house of Houzeau & Asselin: "Précis d'exterieur du Cheval et des principaux mammiferes domestiques" ("Compendium of the Exterior of the Horse and of the Principal Domestic Mammalia"), by Prof. F. X. Lisbre, of the Lyon Veterinary School, comes more as a classical work, which offers the students in veterinary schools the opportunity to obtain a knowledge that no other similar work presents.

Let me analyze briefly. After the introduction, the first chapter is on the eye of horses, donkeys, mules, cattle, sheep, goats, camels, lamias, swine, dogs and cats. The second chap-



ter treats of the coats and their peculiarities in horses, other solipeds, large and small ruminants, swine, dogs and cats, with consideration of the description of an animal. The third and fourth chapters are on the centre of gravity, attitudes and movements and gaits. In the fifth chapter we come to the study of the various regions of the body—the trunk and the extremities, with their individual subdivisions. In this chapter, as in the first and second, the differences in the other animals are also considered. Proportion in horses, other solipeds, and in cattle, occupy the sixth chapter. The seventh treats of the selection of saddle and draught horses. The eighth speaks of the examination at the time of sale.

The Compendium is a work of nearly 450 pages, handsomely gotten up, and is illustrated by 280 figures, some of which are very good, several are inferior, and many rather poor. They spoil the appearance of this excellent addition to veterinary literature.

\* \* \*

DEGREES IN VETERINARY MEDICINE.—I have been favored by a concise announcement from the Washington State College at Pullman, which brought the pleasing news of the establishment of a four-year course in veterinary science, which will lead to a Bachelor's Degree. Indeed, in that announcement it is stated that the curriculum of the Department of Veterinary Science will cover four years of two semesters each and that the graduates will receive the degree of *Bachelor* in Veterinary Science. On another page of the announcement it is stated that in the School of Veterinary Science the curriculum will be only three years of two semesters each and that the graduates will receive the degree of *Doctor* in Veterinary Medicine.

Here I am puzzled. In my copy of Webster's Dictionary I am told that a Baccalaureate or degree of Bachelor is the *first* or *lowest* academic degree conferred by universities and colleges, and that a Doctor is one who has taken the *highest* degree conferred by a university or college, or has received a diploma of the highest degree.

As the curriculum is about the same in the two schools in question, with perhaps covering more subjects in the former, where economic science, English, German, and pharmacy Latin are introduced, I am at a loss to explain why a Baccalaureate (inferior degree) should ask four years when the Doctorate (superior degree) requires but three.

Anyhow, the increase to four years is a good move, and the Washington State College deserves credit for being one of the first to inaugurate it.

\* \* \*

COMMUNICATIONS AND PAMPHLETS RECEIVED.—In the *Agricultural Journal of the Cape of Good Hope*, April issue, an article by Tho. Bowhill, F.R.C.V.S., covering the subject of pasteurella of adult cattle, of sheep, goats, swine, horses, and ostriches.

In the "Abstracts of the Laboratory of Veterinary Physiology and Pharmacy of the New York State Veterinary College," sent to me by Prof. P. A. Fish, I find articles on "Urethral Calculus," "The Effect of Sulphurous Acid upon Peptic and Tryptic Digestion," "Status of Therapeutics," "Effect of Sulphurous Acid upon the Urinary Constituents," all by Prof. Fish. By H. J. Milks, "Arecolin Hydrobromate;" by A. J. Beverley, "Ergot as an Abortifacient;" by F. McNair, "The Structure and Function of the Digestive Tract of the Chicken."

I have received also a reprint on "The Rapid Diagnosis of Rabies," by Dr. Langdon Frothingham; the report of State Veterinarian L. Van Es, to the Governor of North Dakota; a number of pamphlets from the Bureau of Animal Industry, among which I notice: "Etiology of Hog Cholera," by Drs. Dorset, Bolton and McBryde; "External Parasites of Hogs," by Dr. E. C. Stevenson; "The Gid Parasite in American Sheep," by B. H. Ransom; "Cattle, Sheep and Hog Feeding in Europe," by W. J. Kennedy; "*Bacillus Necrophorus* and Its Importance," by Dr. J. R. Mohler and G. B. Morse; "Necrotic Stomatitis," by the same authors; "Texas Fever with Method for Its Prevention," by Dr. J. R. Mohler, and a note on the

"Life History of the Twisted Wireworm of Sheep and Other Ruminants," by B. H. Ransom.

A. L.

Indexed.

### GOVERNMENT INSPECTION OF MEATS.

In the July number of this publication the above subject was reviewed in its various aspects, not alone the sensational methods adopted to secure a very desirable law, and the consequent paralysis of the export trade in American meats, but we there made a very positive prediction that when the smoke had cleared from the battlefield it would be found that conditions were not nearly so bad as they had been painted by an out-of-place literary romancer and a committee of amateurs sent to do work which should only have been entrusted to experts of national reputation. The more one contemplates this peculiar selection of a committee whose report meant so much to American live-stock interests, the more does the action of the President seem out of harmony with his usual thorough conception of great problems.

We confess to having been imposed upon by the lay press in the matter of the *personnel* of the committee of experts selected by representative commercial and scientific associations of Chicago, for in our narrative of its formation appears the name of a mythical *Dr. Hektoen*, instead of that of our distinguished collaborator, Dr. M. H. Reynolds, professor of veterinary science in the University of Minnesota. This committee made a careful study of the conditions in the large packing-houses of Chicago, working conscientiously for two weeks, and, in the words of a member of it, "made an honest report." Our prediction in the July number concerning the anticipated findings of this committee was: "We venture to say that there will be a vast modification of the accounts that have preceded it;" and we print the conclusions of that body in justification of our prophetic vision: "As a result of this investigation we ourselves have no hesitancy in stating that the meat products of the well-known firms at the Yards are wholesome and proper for food."

Some criticism is made of ventilation facilities, toilet rooms and old floors. But they fail utterly to produce any justification for the harrowing stories furnished by "The Jungle" or the President's committee, and it thus becomes a scientific refutation of the reports which have cost the country so much in money and so dearly in reputation. In a review of this document by one of the leading stock papers of the country, the *Breeder's Gazette*, it says: "The entire tenor of the report is such that it deepens the regret at the precipitate action, *based on misleading information*, which has thrown American goods into disrepute the world over. The (committee's) report should be bulletined abroad as widely as the report of the two untrained observers, to whose report all the damage to trade has flowed."

What has been done, however, cannot now be helped, and the patriotic thing to do under the circumstances is for all to unite in a grand effort to impress the world with the fact that the United States now has the safest law for the consumer on earth. Not a pound of meat nor meat products can clear from a port of this country unless it bears the Government label, and the Secretary of Agriculture can be thoroughly relied upon to withhold its stamp of approval unless the law has been rigidly complied with "from the pasture to the package," as well as in the sanitary conditions under which it was prepared.

Elsewhere we print the "Meat Inspection Bill" in full, and commend its careful perusal to all veterinarians. A vast army of inspectors are needed to carry out its provisions, and it is likely that, in securing this large number where so few of our best men are willing to accept such position at the low salary which it carries, many incompetents will be accepted, and the service may suffer some in its *personnel*. Having dealt so liberally with the whole subject in the matter of appropriation, Congress could have redeemed itself by raising the efficiency of the service through increasing the pay of the inspectors to a sum commensurate with the character of the work demanded.

In another section of this number we reprint an editorial



from the representative stock paper referred to above calling for the establishment of a veterinary college at the Union Stock Yards at Chicago to give special training in meat inspection in connection with the great clinical advantages offered by the location.

While the REVIEW is at variance with the policy pursued in bringing about needed reforms in the inspection service, it has no quarrel with the results secured by the veterinary profession. So far as the latter is concerned, such an uplift could not have been obtained for this branch of our science in a decade of the most rapid progress we could have hoped for.

We make one more prediction :

In five years from the present date, no man having knowledge of live-stock conditions can be found who will not acknowledge that the end justified the very harsh means employed.

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#### THE ASSOCIATION OF FACULTIES.

Do not forget that the Association of Veterinary Faculties and Examining Boards will hold its first meeting since its reorganization at New Haven during the A. V. M. A. meeting. It should be fraught with vital importance to the welfare of veterinary education in America, which is greatly in need of some harmonizing and strengthening influence. At last year's meeting the President, Dr. W. Horace Hoskins, was instructed to appoint a committee of three from each of the factors composing the organization (the colleges, the examining boards, and the A.V.M.A.) to present a plan to realize the objects of the organization. We sincerely trust that the duties imposed upon its President have been fulfilled, though we have not heard of any such movement. Dr. Tait Butler, Raleigh, N. C., is Secretary, and has been corresponding with those likely to take active interest in its affairs, urging them to come prepared to contribute to the solution of the problems which the Association was organized to solve.

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### ALL ROADS LEAD TO NEW HAVEN.

Most veterinarians who can will turn their footsteps toward the beautiful city in Connecticut which will this year be the seat of the annual meeting of the American Veterinary Medical Association. The REVIEW is glad to be able to present in this number a detailed program of all that has been arranged for the benefit and comfort of the members and guests, including the papers, the clinic, the exhibits and diversions, together with the arrangements for travel and accommodation.

We felicitate the Association upon the prospect of a great gathering of veterinarians, and a season of much educational value and social pleasure.

The REVIEW for September will give a faithful picture of the salient points of interest, so that those who are prevented from attending may be recompensed so far as descriptive writing can do so.

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### DR. SALMON GOES TO URUGUAY.

Dr. Daniel Elmer Salmon, late Chief of the United States Bureau of Animal Industry, has accepted a position with the Uruguayan Government to organize and conduct a department upon somewhat similar lines to the one which he instituted and brought to such a high state of perfection in this country, and for which grand work he was so poorly paid and shabbily treated. Although his new government is but an infant when compared with that to which he gave the most vigorous years of his life, his salary is considerably larger, being \$6,000 in gold and all of his living expenses.

The entire veterinary profession of America wishes him unbounded success in his new field, and many years of health and happiness.

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CIVIL SERVICE examinations to fill vacancies in the meat inspection service were held all over the country on June 25, and another is called for Aug. 8.

ORIGINAL ARTICLES. *Indexed.*

## SYMPTOMATIC ANTHRAX.

BY CHARLES F. DAWSON, M. D., D. V. S., VETERINARIAN FLORIDA  
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*Synonymy.*—Black-leg; black-quarter; quarter ill; (Ger.), rauschbrand; (Fr.), charbon symptomatique; emphysematous anthrax.

*Definition.*—An acute, fatal, infectious, bacterial disease of cattle, manifested by fever, anorexia, lameness, hot, painful tumors on the neck, shoulder, back, thigh or elsewhere, which become emphysematous and exude black, frothy blood when excised.

*Geographical distribution.*—It prevails as a local disease in Europe, Asia, Africa, Australia and North America. Hence, climatic conditions do not govern its distribution. In America, it prevails extensively in the cattle-raising States, and to a lesser extent in nearly every State of the Union. It is least prevalent in winter. Outbreaks are most frequent in the spring and in dry seasons. In damp, undrained, uncultivated pastures, the disease prevails to a greater extent than in drained, cultivated pastures. A pasture becomes infected by a first case, or by the droppings of carnivorous birds and dogs that have eaten the carcasses, and by streams and air currents. Infected pastures may remain as such for a number of years, this being especially true of uncultivated pastures having a clay subsoil.

*Animals susceptible.*—The disease usually occurs in animals six months to two and one-half years old, but may attack those younger or older. Fat yearlings are most susceptible, while suckling calves are rarely affected. This latter peculiarity may be explained by the fact that the suckling calf is a carnivorous animal, or that it is protected for the time being by an immunizing principle in the milk of the dam. The vast majority of

the older animals resist the disease probably because of immunity naturally acquired by previous mild attacks. In cattle where black-leg appeared for the first time, it is probable that animals of all ages would contract the disease. While the disease is primarily one of cattle, it sometimes attacks sheep and goats. Experimentally, it may be inoculated into sheep, goats and guinea-pigs, as well as cattle. Horses, asses, mules, dogs, cats, swine, poultry, rabbits and man are insusceptible; that is to say, the microbe of the disease will not grow in the bodies of these animals under ordinary circumstances. Some immune animals can be made susceptible by the subcutaneous injection of mixed cultures of the bacillus of black-leg and *Bacillus prodigiosus*, or with *Proteus vulgaris*; by the simultaneous injection of an organic acid; by insoluble substances, such as plaster of Paris; by dirt and hair that may be carried under the skin by the inoculating instrument; by mechanical injury to the tissues from blows and surgical operations. An animal inoculated at a given point, and operated upon at another point, will likely develop the disease at or near the point operated upon. In the experience of the writer, a guinea-pig was inoculated with black-leg virus in the thigh. The skull was then trephined. The animal promptly died of black-leg, localized in the face and neck muscles. If sterilized, old cultures of the black-leg bacillus be injected subcutaneously or intra-abdominally into rabbits, the animals will die of a rapidly-progressive emaciation, or toxæmia. The results would probably be the same where the carcasses of animals dead from black-leg were eaten by some carnivorous animals, or by man.

It is well-known that black-leg is more fatal to grades and pure-breds than to common stock; also that an animal in fine condition will take the disease more readily than one in poor condition. This is explained on the theory that in the prime animal, the microbe finds a more suitable pabulum in which to multiply. Infection may occur in punctured wounds, scratches, or through abraded portions of the alimentary tract.

Spores may be absorbed and deposited by the blood in

distant parts where they find suitable conditions of growth.

*Etiology.*—The cause of black-leg is a rod-shaped bacillus, measuring from 3 to 10 micromillimetres in length and about 0.5 micromillimetres in breadth. It forms spores, and when sporulating, the bacillus becomes shorter and thicker. It is known under several names: *Bacillus anthracis symptomatici*, *Bacillus chauvæ*, *Bacillus of Rausbrand* and *Bacillus anthracis emphysematosi*. The spore is formed in the body of the bacillus and it may be located either in the end or centre of the cell. In the former case, the bacillus becomes club-shaped and in the latter, it assumes a spindle shape. Spores frequently form in the animal body, a point in differential diagnosis between this microbe and that of *malignant œdema*, which it greatly resembles. Biologically considered, the microbe of black-leg is an anærobic, motile, spore-bearing, rod-shaped organism, having a morphology which varies with its culture medium. It ferments weak solutions of glucose with the simultaneous production of  $\text{CO}_2$ , and an explosive gas. Under anærobic conditions, it grows well on all ordinary culture media, liquefying gelatine. Being a strict anærope, it cannot multiply in the circulating blood. When it is present in the blood, it has gotten there by absorption from local lesion. It is found in the blood extravasations of the local lesions when the blood in these situations has become stagnated and saturated with toxin. Its spores may be found in all the more vascular organs of the body. It begins to multiply only when inoculated, either by accident or design, into the non-vascular connective tissue. Hence the organism may be injected into the circulating blood, and not cause the disease. If, however, the operator allow the microbe to enter the connective tissue of the wall of the artery or vein, or other parts the disease will promptly set in. In cultures, and in the disease-exudate, the microbe may be observed varying in its morphology as follows: 1st, as straight, motile bacilli of uniform thickness throughout, singly and in pairs; 2d, as spindle-shaped, club-shaped, spore-bearing bacilli, the shape being determined according as the spore is located cen-



trally, or at the pole of the cell; 3d, as free spores which have been set free by the degeneration of the cell-wall and contained protoplasm.

Black-leg may be confounded with anthrax and malignant œdema; hence, for the sake of brevity and conciseness, the following table stating the main biological characters of the microbe of each of these diseases is given below:—

| <i>Bacillus of Black-Leg.</i>   | <i>Bacillus of Anthrax.</i>   | <i>Bacillus of Malignant Edema.</i>  |
|---|---|--|
| 3-10 microns $\times$ 0.5 microns<br>Ends rounded.  | 5-10 microns $\times$ 1.25 microns<br>Ends square.  | 3-5 microns $\times$ 1 micron<br>Free ends rounded. Ends<br>in apposition square.  |
| Occurs singly and in pairs.<br>Does not form filaments.<br>Anaerobic.<br>Motile.<br>Sporulates in living body.  | Occurs in chains.<br>Does not form filaments.<br>Aerobic.<br>Non-motile.<br>Does not sporulate in living<br>body.   | Occurs in chains.<br>Forms filaments.<br>Anaerobic.<br>Motile.<br>Does not sporulate in living<br>body.  |
| Does not multiply in blood<br>stream  | Multiplies in blood stream.   | Does not multiply in blood<br>stream.  |
| Fatal principally to cattle.<br>Ferments sugars.<br>Produces gas.<br>Not fatal to rabbits.<br>Tumors large and gassy.<br>Bacillus and spores present<br>in decomposed body. | Fatal to most animals.<br>Does not ferment sugars.<br>Does not produce gas<br>Fatal to rabbits.<br>Tumors small and hard<br>Bacillus decompose with<br>body. Spores only present. | Not fatal to cattle.<br>Ferments sugars.<br>Produces gas.<br>Fatal to rabbits.<br>Tumors large and gassy<br>Bacillus and spores present<br>in decomposed body. |

*Effect of disinfectants.*—As with all other spore-bearing microbes, that of black-leg is very resistant to the disinfecting effects of heat, chemicals, light and desiccation. While the vegetating microbe is very readily killed, the spore will live for years in the soil, buildings, harness, etc. It may be subjected to cold many degrees below zero and yet retain its virulence. It may be heated in dry air at 200° F. for an hour without being destroyed, although its virulence will be somewhat lessened. If subjected to super-heated steam for 20 minutes, it is destroyed; but will retain its vitality in boiling water for an hour. In practise, none but the more potent chemical reagents need be employed as disinfectants, namely: mercuric chloride, in 10 p.c. solution, carbolic acid, in 5 p.c. solution, the dilute mineral acids, quick-lime, chloride of zine, and strong solutions of any of the recently invented coal-tar disinfectants, fire.

*Symptomatology.*—The disease runs a rapid course, ending

fatally in from one to three days. Its chief characteristic is the formation of a tumor which, in some cases, is preceded by fever, and in others, is followed by the same. This tumor, small at first, rapidly increases in size, pits on pressure, and finally attains a size of one to two feet in diameter. In rare cases, the whole body is affected. Pressure upon the tumor now produces a crackling sensation, because of the gas imprisoned in the tissues. The swellings may appear upon any part of the body; but they are generally confined to the denser muscular portions. Hence we find them on the thighs, neck, shoulders, and in the lumbar region and sacrum. Less frequently they are located in the palate, tongue and pharynx. They never occur below the knees, or hocks, or on the end of the tail, or ears. The swelling is at first hot and painful, but soon becomes cold in the centre, and that part may be incised without causing the animal to flinch. The main characteristics, then, of the swellings are the crackling upon pressure, or a gurgling sound is emitted when the hand is passed over them. Upon percussion, a tympanitic note is produced. The centre is insensitive, dark in color, and in a condition of dry gangrene. They are cold, and when incised, a dark red, frothy, foul-smelling, bloody fluid flows from the wound. Frequently smaller swellings become confluent, and in this manner the whole body may become swollen. The lymphatic glands may become involved, and these can be felt as little tumors under the skin.

In addition to, and as a result of these conditions, the following general symptoms may be enumerated: Sudden loss of appetite, general depression, high fever, lameness, labored breathing, colicky pains, moaning, increasing weakness, decline of fever, subnormal temperature and death. In some cases, the general symptoms precede the tumor-formation.

Although the disease is generally a fatal one, cases, mild in character have occurred, with recovery in old animals. This observation is especially true in the artificial infection of cattle. Frequently these fail of infection, even when inoculated with large doses of active virus.

*Pathological anatomy.*—Upon inspection of the carcass, it is found much bloated, with the escape of a bloody froth from the mouth, nose and anus. A limb is generally much swollen and crepitant. The skin covering the swelling is dry and gangrenous. The connective tissue beneath it is infiltrated with blood which contains gas bubbles. At times, this tissue is infiltrated with yellow gelatinous material. The affected muscular tissue is dark, red or yellow, emphysematous, dry in the older portions of the tumor, and moist in the more recently affected parts. The emphysematous or spongy portions are, from their distended condition, much lighter than the more solid parts. When stroked, they crepitate and exude a frothy, tarry, foul-smelling liquid. The contained gases are inflammable, and are supposed to be carburetted and sulphuretted hydrogen. The same degenerative changes take place in the internal muscles, namely, those of the tongue and throat, as occur in the skeleton muscles, when the disease is located in them. When the lymphatic glands participate in the disease process, the lymph vessels are distended with gas.

There are generally little or no changes in the abdominal cavity, unless the inflammatory process has involved the peritoneum, when a blood-red exude of considerable amount may occur. Yellow, gelatinous and hæmorrhagic infiltrations frequently occur in the serous membranes and in the tissues adjacent to the kidneys. The mucous membranes of the stomach and intestines are sometimes congested and contain hæmorrhagic areas; in which cases, the contents of these viscera will be stained with blood.

In the thoracic cavity, the parietal pleuræ may be infiltrated with blood, and the pleural cavities may contain a sero-sanguinous exudate. The lungs, pericardium, myocardium and endocardium will be infiltrated with hæmorrhages. The heart muscle is soft and easily torn.

As the microbe cannot vegetate in the circulating blood, this is not visibly affected during life; but after death, when all the oxygen has disappeared, the germ multiplies with great

rapidity, anærobic conditions having been established. The decomposition of the body is peculiar. For instance, if a hind quarter is the location of the disease, that part of the body will resist putrefaction much longer than the unaffected portions, because the black-leg microbe has, in its growth, produced substances which are inimical to the ordinary germs of putrefaction.

*Diagnosis.*—We have first to differentiate black-leg from malignant œdema, which it not only resembles, but because both germs have several points in resemblance, to wit: both microbes are anærobic; both are motile; both produce spores, and both produce crepitating, gassy tumors. Neither microbe vegetates in the circulating blood. The history of the outbreak is an important element in arriving at a correct diagnosis. Black-leg is restricted to certain infected districts, while malignant œdema may appear in a susceptible animal anywhere, as the microbe is universally present in the soil, in the spore stage. Malignant œdema attacks man, the horse, rabbits and pigeons, but is rare in cattle. The microbe of black-leg is not pathogenic for man, horses or rabbits. Both organisms are about the same length, but the œdema bacillus is twice as broad as that causing black-leg. The œdema bacillus does not form spores in the living tissues, while the black-leg bacillus does. The former forms filaments in the local lesion, while the latter does not. Both germs are fatal to guinea-pigs, but only one, the œdema bacillus, is fatal to rabbits.

Another disease, anthrax, may be confounded with black-leg, although there are wide differences, both in the respective lesions, and in the two microbes, as well. Being an ærobie, the anthrax microbe is found vegetating in the circulating blood or other highly vascular organs. It grows in chains, and always presents its spore centrally, without causing bulging of the cell walls, as is the case with both the foregoing organisms. Spore production occurs after death, or when the supporting tissue has become impoverished. The bacillus of anthrax is always square on the ends, is non-motile and produces a cottony



growth upon the surface of the ordinary solid culture media. It does not produce gas; hence the swellings produced in anthrax are not gassy. In an outbreak of anthrax, several different kinds of animals may be affected; horses, cattle, sheep, hogs, of all ages; while in black-leg, the disease will be confined to young cattle. Of the ordinary experimental animals, rabbits, guinea-pigs and mice succumb to anthrax inoculation, while rabbits do not take black-leg. Finally, anthrax may be inoculated upon a superficial wound or into the blood stream, being *ærobic*; while the microbe of black-leg, being *anærobic*, must be inoculated into an air-free tissue. In black-leg, the muscle tissue always contains gas, and the spleen and blood are perfectly normal. In anthrax, the muscle tissue never contains gas, and the spleen is much swollen. The blood, in anthrax, is dark and tarry and coagulates, if at all, very feebly. The blood in black-leg is normal in appearance. The germ of black-leg may be confounded with some of the gas-producing invasive bacteria, but enough has been said concerning the biology of the black-leg bacillus to render their differentiation easy, in the laboratory.

*Prognosis.*—This must always be unfavorable. While there can be little doubt that cases, now and then, recover, it is the exception that they do. Doubtless there are many instances where exposed animals take the disease in a clinically unnoticeable form, gaining an immunity thereby. The writer has had considerable experience in attempts to produce a fatal attack by artificial inoculation, and has, in several instances, noted a severe reaction, lasting several days, which ended in final recovery, with atrophy of the affected muscles. Hence, we must conclude that animals do, sometimes, recover from attacks naturally acquired, and it is possible that very many, if not all animals grazing on infected pastures have at one time or another contracted the disease in a clinically unnoticeable form. In the severe form, it is such a malignant disease, and runs such a short course, that an unfavorable prognosis is always to be given.

*Therapeutics.*—It is evident that there is little to be done in



the way of treatment. Those who believe in the saying that "while there's life, there's hope," would naturally turn their attention to the local lesion. The swelling may be freely incised, as soon as it appears, and packed with cotton soaked in strong disinfectant solutions, such as bichloride of mercury, carbolic acid, and the like, these being necessary to kill the spores which form early. The injection of strong carbolic acid into and around the tumor would be the better and safer method, as there is the added danger of infecting the pasture with the discharges when incisions are made. In a case of malignant oedema in a horse, this method was adopted by the writer, with a favorable result; not, however, without the loss of considerable tissue. The acid was injected hypodermically, in drachm doses, three times a day, for three days. Ligation of the limb to stop circulation and absorption, and free incisions into the tumor, have with one author met with some success. The parenchymatous injection of air or oxygen into the affected tissues would also be logical treatment, if thoroughly done.

Various barbarous methods are resorted to by laymen and illiterate practitioners in the way of treatment. If any of these do any good, it is brought about by the resulting depletion which robs the system of the pabulum on which germs grow.

The following is from the Annual Report of the Bureau of Animal Industry for 1898: "I roped and dragged the animal through a pond of cold water and cut off the end of its tail, and it came out all right." "I started him on a run and kept it up for three miles. Then he seemed easier and recovered. But ninety-nine times out of a hundred they will not run, but just lie down and die." "A 2-year-old steer took lame in the morning with a large swelling on the hind leg. A man on horseback dragged the animal for half an hour, when it began scouring, and in the course of a few days it had recovered." "I saved three out of four by nerving or bleeding them in the foot and running them. One I cured by nerving and giving 20 drops of aconite every two hours. I tried the same on a number of others without effect."

*Hygiene.*—Evidently the most important hygienic measures are to avoid grazing on infected pastures, and the total destruction by fire of animals that have died of the disease. Such pastures may be cultivated and planted to other crops, or may be used for horses, or other insusceptible animals.

As a means of preventing the spread of the disease, the most radical police regulations must be carried out. All infected animals should be at once cut out of the herd and allowed to die at a place where the body can be entirely destroyed by fire. No part of the body should be reserved, nor should the carcass be dragged across the pasture. Burning is best accomplished by digging a trench, piling wood over it and placing the animal on top of the pile. Sufficient wood must be used to evaporate the water from the body, after which the carcass will burn of itself. The contents of the stomachs and intestine will fall into the pit, which is now to be filled up with soil from a nearby place. In some localities where wood is scarce it will not be practicable to cremate the carcass. In such cases, the only course left is to bury the animal deeply at the place where it dies. Dead bodies should never be thrown into streams. The grave should be at least six feet deep, and to one side of the carcass so it can easily be tumbled in. Lime should be thrown in upon the carcass in a layer four inches thick. Then the top surface of the soil upon which the animal has lain should be shoveled into the grave, and the whole covered. Should stones or wood be handy, a layer of these, if large enough, would prevent dogs from digging down to the carcass, and thereby scattering the virus. Burial should not be permitted near the water supply, or a stream. On farms or ranches where black-leg prevails, it would be economy to fence off a lot, place all affected animals in it, and bury or burn them there when they die. Hay or grass from such a lot should not be used.

*Prophylaxis.*—This consists in measures which have for their object the fortification of the animal against infection. It has been noted by those who have had practical experience with black-leg, that the disease seems prone to attack most

readily animals in good flesh, while sickly or poor animals are not so readily attacked. Therefore, the artificial reduction of vitality by setons or rowels, or by the administration of laxative or purgative medicines, has been much in vogue by stockmen. The seton or rowel is placed in the dew-lap or shoulder, and consists of passing a piece of rope through or under the skin at these points. The ends are tied or spliced, and it is frequently pulled on to keep up an intense irritation and set up a profuse suppuration, which lowers the vitality of the animal. Sometimes the rope is soaked in irritating substances before its introduction. Garlic is sometimes inserted under the skin for the same purpose. The seton should be used, if at all, only as a temporary expedient, and be removed in a week or ten days. This method is much practised in England, although two eminent English veterinarians, Stockman and McFadyean, are of the opinion that the seton is not only of no value, but may actually favor the production of the disease. Stockman cites the following as evidence to support his view: "At the request of a client, whose losses from black-quarter are annually very high, a friend of mine setoned fifteen yearlings. For some reason a sixteenth animal was not setoned. The sixteen animals were all pastured on the same meadows. All the setoned animals died of black-quarter, and were survived by the one that had not been setoned. In the light of such evidence, it would seem that if the temporary expedient of reducing vitality is to be resorted to, the better method would be the reduction of the feed, and the production of free catharsis, until the other safer prophylactic method, that of protective inoculation, could be carried out.

*Protective inoculation.*—To Arloing, Cornevin and Thomas, three French scientists, belong the honor of demonstrating that animals can be protected from a fatal attack of the disease by inoculating them with small amounts of black-leg virus. They discovered, that while the subcutaneous and intramuscular inoculation of the virus causes death, the intravenous and intratracheal inoculation causes a harmless attack, and that

immunity from a future fatal attack was thereby produced. At Chaumont, in 1880, they inoculated thirteen animals by intravenous injection of filtered, watery extract of a black-leg tumor. At the same time, they inoculated subcutaneously, twelve animals with part of the same virus. Of these twelve inoculated subcutaneously, nine died of black-leg from the inoculation, while of those inoculated intravenously all not only survived the inoculation, but six months later showed themselves immune to a subcutaneous inoculation of the virus.

Although they proved conclusively that perfect immunity to black-leg could be established by the intravenous and intratracheal injection of the strong virus, the methods were not practicable, because the jugular vein and trachea had to be laid bare in each case, and great care had to be exercised in introducing and withdrawing the syringe needle to prevent any of the virus entering the connective tissue either in the wall of the vein or trachea, or that surrounding them. They subsequently chose for the site of the inoculation, the subcutaneous tissue in the end of the tail, where they found only a temporary swelling was produced in most cases. In some cases, however, the swelling spread to the rump and caused death, or the tail became gangrenous and sloughed off. Evidently such methods could not be adopted in private practice. They and other scientists, who were attracted to the subject by their discoveries, attempted the production of attenuated or weakened cultures and virus to which the name vaccine is now applied. In every case, the object sought was the subjecting of the system to the toxin produced by the growing microbe.

Roux's vaccine was made by first growing the microbe in bouillon, then sterilizing these cultures by heat, and then filtering off the dead microbes through a porcelaine filter. The filtrate or toxin only was used as the vaccine.

In 1883 Arloing, Cornevin and Thomas, who maintain a bacteriological laboratory at Lyons, France, invented a method of preparing a black-leg vaccine which is known as the "French method," "Arloing's method," or as the "Lyons method."



The virus is obtained by grinding up fresh tissue from a black-leg tumor, adding water, and then pressing out the spore-containing juice from the pulp by means of a press or piece of linen. This juice is then poured in thin layers upon plates and dried at 35°C. The resulting scales are then ground into a fine powder, and put into bottles as stock virus.

When vaccine is to be prepared, the powdered virus is mixed in a mortar with twice its weight of water. The semi-fluid mass thus formed is then spread on glass dishes, in layers about  $\frac{1}{16}$  inch in thickness. The dishes are then placed in a thermostat at a temperature of 100°C., and are allowed to remain there for seven hours. The contents of the plates, now converted into a dry brown scale, is removed and ground into a fine powder. This powder constitutes what is known as No. 1 vaccine, or 1st lymph. Second vaccine, or 2d lymph, is prepared in the same way, except that it is subjected to a much lower temperature, 90° to 93°C. for the same length of time. These two preparations are spoken of as "double vaccine." In applying them, doses of 1 centigramme for each animal are dissolved in as many cubic centimeters of sterile water, and filtered through a piece of clean, wetted linen, or cotton. Each animal receives subcutaneously at a convenient point, such as the shoulder, one cubic centimeter of the filtrate. Ten days later No. 2 vaccine is prepared, and injected similarly. These procedures cause a very mild and unnoticeable attack of black-leg, which confers a future immunity for eighteen months. Hence, yearlings or older animals will have passed the susceptible age, by the time the artificially-produced immunity disappears, and animals under one year old should be revaccinated the following year, because they would still be of a susceptible age when the protective influence of the vaccine had waned.

Thousands of animals were protected by this method in France, Switzerland and Germany. Hess reports the vaccination of nearly 150,000 head during the ten years from 1885 to 1894, in Berne, with a loss of 5 head per thousand. Sperk, in 1885, vaccinated 925 animals. These were sent to graze on



badly infected pastures in the Tyrolean Alps. None of them died. During 1886, 2,140 cattle were vaccinated in Salzburg, with a loss of only 4 head, while out of 9,160 non-vaccinated animals in the same place, 86 head died with black-leg. In Baden, where the government compels vaccination, and pays for all that die from it, there were, in 1886 to 1894, only three death claims out of 3,567 animals vaccinated.

Although such brilliant results were obtained from the application of Arloing's double vaccine, the method was not altogether satisfactory to the veterinarian or his client, as it entailed a double handling of the cattle and became quite expensive.

It remained for Professor Kitt of the Veterinary College in Munich, Bavaria, to invent a method which removed the objectionable features of the double vaccination. He discovered, while employing the double vaccine of Arloing, that Arloing's second vaccine could be safely used, in many instances, without a previous vaccination with the first vaccine. Kitt now prepared a "single" vaccine, as it is called, and even used virus which had been heated for only six hours at a temperature of from 85°-90° C. He obtained favorable results with this vaccine, and it immediately became very popular with the profession, as it removed the objections attendant upon the use of a double vaccine. From 1890 to 1892, in Salzburg, only 5 head out of 4,112 vaccinated, died. In Bavaria, there were no deaths among 167 protected cattle. Equally favorable results were obtained in other places, except in Lower Austria, where a rather high percentage of deaths occurred from the vaccination.

This misfortune was somewhat of a blow to the adherents of the single vaccine, and the Arloing method, double vaccination, was again adopted. Kitt, recognizing the great inequality of the vaccine, made from the flesh of animals affected with black-leg, and because of the great amount of detail necessary in preparing the vaccine, turned his attention to the preparation of a vaccine consisting of attenuated (weakened) cultures of the microbe. This method has never become popular, and

is essentially a laboratory method, being wholly unsuited for field work on a large scale. Kitt's, and others successes in the use of a single vaccine, notwithstanding some misfortunes in its use, paved the way for future experimenters in this line.

In 1896, the United States Bureau of Animal Industry took up the work of preparing a safe "single" vaccine, according to the Kitt method. The results of preliminary experiments in the field with the single vaccine prepared by the Bureau were so satisfactory that immediate steps were taken to produce the vaccine on a large scale with the view of ultimately stamping out this cattle scourge in the United States.

The method of Kitt was the basis upon which the Bureau "single" vaccine was prepared. Slight modifications were necessary on account of the tremendous demand for the vaccine, these demands amounting to about 700,000 doses a year.

The Annual Report of the Bureau of Animal Industry for 1898 gives the following table of statistics, compiled from reports from stockmen in the states where black-leg prevails as a cattle scourge, and who used the Bureau "single" vaccine.

TABLE SHOWING THE NUMBER OF CATTLE VACCINATED, AND THE PERCENTAGE OF LOSS BEFORE AND AFTER VACCINATION.

| STATE OR TERRITORY. | Number of Reports | Number of Cattle Vaccinated. | Average Annual Loss from Black-leg. Per Cent. | Died Before Vaccination. |           | Died After Vaccination. |           |
|---------------------|-------------------|------------------------------|---|--------------------------|-----------|-------------------------|-----------|
|                     |                   |                              |   | Number.                  | Per Cent. | Number.                 | Per Cent. |
| Texas . . . . .     | 164               | 50,609                       | 13  | 1,462                    | 2.95      | 227                     | 0.45      |
| Nebraska . . . .    | 71                | 20,893                       | 17.2  | 796                      | 3.80      | 52                      | 0.25      |
| Kansas . . . . .    | 140               | 19,508                       | 11  | 919                      | 4.76      | 115                     | 0.58      |
| Colorado . . . . .  | 53                | 12,609                       | 12.8  | 230                      | 1.83      | 138                     | 1.09      |
| Oklahoma . . . .    | 37                | 7,915                        | 17.5  | 471                      | 5.96      | 37                      | 0.47      |
| Indian Territory.   | 20                | 7,418                        | 17.5  | 504                      | 7.81      | 95                      | 1.28      |
| North Dakota . .    | 22                | 6,118                        | 12.75   | 133                      | 2.18      | 25                      | 0.41      |
| South Dakota . .    | 15                | 2,299                        | 12.75   | 74                       | 3.32      | 11                      | 0.48      |
| Total . . . . .     | 522               | 127,369                      | 14  | 4,589                    | 3.63      | 700                     | 0.54      |

*Preparation of the vaccine.*—The virus from which the vaccine is made is obtained either from an animal which has died from natural infection, or from one which has died from an arti-

ficial inoculation. The dark, spongy portions of the meat from the affected parts are freed of all fat and fascia, and are cut into strips of about one-half inch thickness. These are then threaded upon strings in a dry, cool, airy, fly-tight room for ten days, to dry. When thoroughly dry, these strips are reduced to a powder, by grinding. This powder is then passed through a 20-mesh sieve to free it of connective tissue and coarse particles.

To each gramme of the meat-powder, or virus, are added two cubic centimetres of water. Mix in an inverted, round-bottom bell-glass with the hand, or a spoon. Spread the dough thus formed in a layer one-quarter inch thick upon a ground glass plate or marble slab, and cut cakes therefrom by means of tin pans, three inches in diameter, and one-sixteenth inch deep, in the same manner as cakes are cut from dough, with the exception that the pans are slid sidewise on the slab and not lifted from it. This method insures an even distribution of the dough in the plates which is not attainable in any other way. The pans are then placed on wire-bottom trays in a thermostat kept at about  $93^{\circ}\text{C}$ . for six hours. The thermostat should be so ventilated that the added water is all evaporated in about three hours. At this time the cakes should begin to curl up, and at the end of the sixth hour, they should be thoroughly dry. To prevent the cakes from adhering to the bottoms of the pans, they should be smeared with vaseline by means of a sponge. The cakes should not be removed too suddenly from the oven, as they are somewhat prone to re-absorb moisture; but they are to be left in the open oven to cool off gradually. When cool, the cakes are put into jars or boxes in a moisture-free atmosphere. They are subsequently passed through a coffee-mill seven or eight times, to reduce them to a very fine powder. The mill for grinding the vaccine should never be used for grinding the original virus, and considerable care must be taken throughout the process to keep the vaccine and virus separated. In fact, the vaccine should be prepared in a separate room provided with its own apparatus. Persons

handling the virus should not take part in the handling of the vaccine, as unattenuated spores are liable to get into the vaccine, and cause a fatal infection in the animal upon which it is used.

For sieving the vaccine, an 80-mesh sieve is used. The top layer of the cakes is difficult to pulverize and is almost insoluble, so it is better to discard that part which is not sufficiently fine after seven or eight passages through the mill. The vaccine should be tested for strength and immunizing properties.

*Testing the vaccine.*—The vaccine is prepared for testing by dissolving one hundred milligrammes, or ten calf doses, in ten cubic centimetres of sterile water, by grinding in a mortar, and filtering off the insoluble portions through a thin, wetted layer of cotton or linen. The filtrate, which should measure ten cubic centimetres, is the vaccine, and it should be of a light brown color. Each cubic centimetre, is then a calf dose.

Two or three guinea-pigs receive intramuscularly three-fourths of the calf dose, or three-fourths of a cubic centimetre of the filtrate. The same number receive one-half the calf dose or one-half a cubic centimetre, and three others receive one-fourth the calf dose. Their temperatures are recorded daily. Ten days after their temperatures have become normal, the animals should be tested for immunity, and the inoculation of a minimum fatal dose of the unattenuated virus. As every lot of virus differs in virulence from every other, the fatal dose must be pre-determined. This is done by inoculating several guinea-pigs with varying quantities of strong virus, beginning with one-tenth milligramme, and increasing the dose for each succeeding animal by one-tenth milligramme. The minimum fatal dose for an unprotected pig is the size dose for testing the immunity of the vaccinated ones.

The test is not always satisfactory when carried out on guinea-pigs. Experience has shown that a vaccine which causes a noticeable temperature reaction in guinea-pigs which receive the three-quarter, and one-half calf dose, is safe. Should a vigorous guinea-pig die from the small dose, the indications



are the vaccine is insufficiently attenuated, and it might produce black-leg instead of preventing it. Such vaccine should be discarded, or it may be moistened with an equal weight of water, heated at  $90^{\circ}\text{C}$  for two hours, and be re-tested.

A typical test would be observed in a lot of guinea-pigs which showed a rise of two or three degrees in temperature, as a result of the vaccination, and no reaction as a result of a subsequent inoculation with the minimum fatal dose of unattenuated virus. As a matter of fact, this is not always obtained, the pigs often showing discordant results. Sometimes, those which receive the smallest dose of vaccine show the greatest reaction. Where possible, it is better, safer, and more to the point to carry out the test upon range cattle.

A "double" vaccine may be made upon the foregoing plan by attenuating one preparation at  $97^{\circ}\text{C}$ . for six hours, and another preparation at  $90^{\circ}\text{C}$ . for six hours. These are to be tested similarly to "single" vaccine, making the injections at ten-day intervals. There can be little doubt that the double vaccination is the safer, and it is recommended in pure-bred or high-grade animals. In any event, the veterinarian should explain the relative value of the two methods to his client, and should, everything else being equal, advise "double" or even a third vaccination in the case of valuable animals. The vaccine is prepared for use in vaccinating calves in the same manner as directed for testing on guinea-pigs. The injections are made into the subcutaneous tissue of the shoulder.

For attenuating the virus, or making the vaccine, I have used with success, a specially-made, hot-air oven, instead of the expensive oil oven. The temperature in such an oven is very easily regulated, and it can be put to other uses, when desired. It consists of a galvanized-iron cylinder with a ventilating pipe entering the cone-shaped bottom. This cylinder is surrounded by another two inches greater in diameter, and they are fastened together by iron straps. The outer cylinder extends to the floor and supports the inner cylinder. Outside of all, is an inch jacket enclosing completely a dead air space. The whole is cov-



ered with asbestos. The cover fits loosely over the top of the cylinders, is double, and when down in its place, its bottom rests upon a felt-lined flange of the inner cylinder, making a tight joint. The space between the top and bottom of the cover then becomes continuous with that between the inner and outer cylinders. Six tubulations pass through the cover, and connect with the interior of the oven. These serve for regulator, thermometer, and for gauging the rapidity of moisture evaporation. A small opening in the top of the cover allows ventilation for the Bunsen burner below, from which the heat is derived.

*Other kinds of black-leg vaccine.*—The enormous demand for this vaccine, and the more or less difficulty and expense in applying it has stimulated those interested in the commercial aspect to gain trade by marketing their vaccine in simpler form. Some stockmen who, for reasons best known to themselves, have applied the vaccine, by simply cutting through the skin, and pouring the dry vaccine powder into the incision, the results being dire, in many cases.

One commercial concern markets the vaccine in cords which have been soaked in liquid vaccine, and then dried. They supply a needle, and with this a certain length of cord is passed under the skin in seton fashion.

Another firm markets the vaccine in pill form. This pill is quite small, being made in a very condensed form by ridding the vaccine of much of its insoluble substances. It is inserted under the skin by means of a spring trochar. The pill dissolves quite readily, and if made of good vaccine, it would seem there could be no objection to its use. This firm, which also supplies the vaccine in powder form, reports satisfactory progress with the pill.

At the suggestion of the writer, Mr. Roy Davis, Professor of Physics in the University of Florida, has invented a very ingenious automatic magazine, spring trochar for inserting these pills under the skin. The instrument is perfect in its mechanism, and can be constructed to carry fifty pills or more. It is of convenient size for carrying in the pocket, and with each pull

on the piston a pill is placed in the point of the hollow needle by pneumatic pressure, and is ejected therefrom, under the skin, by pressure upon the piston.

The writer has shown that an aseptic fluid vaccine may be prepared by the practitioner at his office, where conditions are generally more favorable for such work than in the home of his client, or in the field. Its main advantages lie in the fact that it is ready for immediate use, and renders the carrying of the cumbersome filtration outfit unnecessary. It is made as follows: The vaccine powder, say one hundred doses are placed in the mortar and rubbed up with twenty cubic centimetres of clean water. To this paste thus formed are added eighty cubic centimetres of glycerine. After thorough mixing with the pestle, the solution is strained through a cloth of sufficient coarseness to allow a coffee-colored liquid to pass through. The filtrate is the vaccine, and it may be carried in a bottle in the pocket along with the syringe. Should any remain unused, it could be kept for the next engagement.

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DR. J. B. TIFFANY, of Columbia, Mo., has accepted a temporary appointment in the B. A. I. and is stationed at So. St. Joseph.

DR. W. F. LAVERY, of the Kansas City meat inspection force, has recently been transferred to Chicago, where it is said he will have charge of the night inspection force.

"PROGRESS OF THE VETERINARIAN IN THE PHILIPPINE ISLANDS" (illustrated), by David G. Moberly, D. V. S., Chief Veterinarian, and Robert H. McMullen, D. V. S., Veterinarian, Bureau of Agriculture, Manila, P. I., will appear in the September REVIEW.

FEW veterinarians residing in New York and adjacent States should fail to attend the New Haven meeting Aug. 21-24; but if for any reason they are unable to be present, they should take advantage of the State meeting at Buffalo Sept. 11, 12 and 13. Secretary Stone presents a program elsewhere that is sufficient to make a veterinarian's mouth water. The clinics of the New Yorkers are always of a high educational value, and the Buffalonians are determined to keep abreast of the standard set by Brooklyn and Ithaca.

## CLINICAL EXAMINATION OF THE BLOOD OF NORMAL CATTLE.

BY WILLIAM WALLACE DIMOCK AND MULFORD CONKLIN THOMPSON.

Thesis Presented to the Faculty of the New York State Veterinary College, Cornell University, for the Degree of Doctor of Veterinary Medicine, 1905.

The amount of work done and the literature on this subject are very limited, done chiefly by Smith and Kilbourne in their investigations on the nature and etiology of Texas fever in cattle. They have given the number and size of the red cells. They have counted some leucocytes, but on account of the small number which they counted do not consider the results accurate. Bethe and Malassez have also counted and measured the red corpuscles. Stöltzing has also counted the red cells. Gulliver and others have measured the red cells. Hirschfeldt has worked with the leucocytes from a morphological standpoint and has described four varieties. Hayem has counted both the red and white cells and estimated the hæmoglobin of *Bos Indicus*, a closely allied species.

The object of our study has been to obtain data regarding the conditions found in the normal blood of the cow and at the same time to examine and note any changes found in pathological cases that presented themselves, thus giving some idea of what we may expect to find under normal conditions, and also bringing out as far as possible the clinical importance of blood examinations in the bovine species.

In our work we have determined as accurately as possible the number of red and white corpuscles per cubic m.m., making a differential count of the latter and giving the percentages and numbers of each variety. The hæmoglobin has also been estimated in each case. We have made a careful study of methods of obtaining blood for examinations, as an easy and rapid method is essential to success and accuracy. After several trials we selected a point on the tail one to one and one-half feet from the body as being most satisfactory, and an area on the lateral side to avoid puncturing the artery on the lower

side of the tail. The hair was clipped from the area selected, washed with water, disinfected with 5 per cent. carbolic acid, rewashed and dried with alcohol. The puncture was made with a spring fleam. The blood was immediately drawn into pipettes and films spread on slides. The red and white cells were counted from the same preparation. The blood was diluted 1-100 with Toisson's diluting fluid. The apparatus used for counting was Thoma's hematocytometre with the Zappert-Ewing ruling. In counting the red cells one hundred squares were counted by each of us on different slides, thus each checking the others work, and if the results did not agree, the count was discarded and a satisfactory re-count made.

In counting the leucocytes the entire number on the ruled space was counted.

In staining for differential counting Jenner's stain was used entirely.

The hæmoglobin was determined by use of Gower's and Oliver's hemaglobinometres. In some cases the results were checked, one by the other, and found to agree closely.

The blood examined was taken from the Cornell University dairy herd, each animal being at time of count, so far as we were able to determine, in a normal condition. Those examined were from two to nine years of age.

The few abnormal cases examined are from those which have been brought to the college clinic.

The red corpuscles in the circulating blood of mammals are cup-shaped, as has been demonstrated by Weidenrich, and confirmed by Lewis. We have found this to be the case in the blood of the cow. The cup-shaped form may be seen in the counting chamber in fresh blood diluted with Toisson's fluid; but after standing a short time they assume a bi-concave form.

The size of the red corpuscles as determined by Smith and Kilbourne is five to six microns; by Bethe 4.6 to 7.2 microns; by Malassez, 6 microns; by Sussdorf, 5.6 microns; and by Gulliver, 5.95 microns.

There are five varieties of leucocytes, lymphocytes, large

mononuclears, polynuclears, eosinophiles, and mast cells.

The lymphocytes are two to three times as large as the red cells, and have a reticulated structure. The nucleus is very large and circular, occupying nearly the entire cell. The cell body appears as a narrow rim surrounding the nucleus. The nucleus does not stain nearly so deeply as does the cell body.

The mononuclears vary greatly in size: from two to six times as large as the red cells. Like the lymphocytes they have a reticular structure. The nucleus is horse-shoe shaped, but often irregular, and occupies much less of the cell than does that of the lymphocyte, frequently not over one-half. When compared with the lymphocyte the cell body does not stain so deeply.

The polynuclears are larger than the lymphocytes but not so large as the large mononuclears. The nucleus is in two or more parts, these being connected by thread-like bands, though sometimes they appear as a large bent nucleus. The nucleus appears to have a reticulated structure and stains a dark blue. In the cell body are very fine granules which stain a pinkish hue, giving the appearance of this color to the entire cell body.

The eosinophiles are of about the same size as the polynuclears. The nucleus occupies from one-third to one-half of the cell body and stains a faint bluish color, and appears to be bi- or tri-lobed; the lobes being connected by stout bands. The cell body contains many large acidophile granules. These have a circular outline and stain a bright red color.

The mast cells are about the same size as the eosins. The nucleus is sometimes bi-lobed; the lobes being connected by a strong band, but more often it appears as a large single bent nucleus. It is frequently hidden by the many large basophile granules contained in the cell body. These granules take a deep blue color, and are about the same size as those of the eosins; they are circular or oval in outline.

The results of our examination of twenty-one normal, and four pathological cases are given in the following table and summary.



|                  |         |             |       |                |                  |               |      | White Corpuscles |               | Differential Count of Leucocytes |      |                |                |      |    |              |     |   |  | Mast Cells |  | Remarks |  |
|------------------|---------|-------------|-------|----------------|------------------|---------------|------|------------------|---------------|----------------------------------|------|----------------|----------------|------|----|--------------|-----|---|--|------------|--|---------|--|
| No               | Age     | Breed & Sex | Hib.  | Red Corpuscles | White Corpuscles | Lymphocytes % | No.  | %                | Neutrophils % | No.                              | %    | Polynuclears % | Eosinophiles % | No.  | %  | Basophiles % | No. |   |  |            |  |         |  |
| 1                | 2       | H ♂         | 65    | 6676000        | 4400             | 69.11         | 3041 | .21              | 9             | 25.91                            | 1140 | 3.69           | 171            | .42  | 19 |              |     |   |  |            |  |         |  |
| 2                | 2       | J "         | 60    | 4818000        | 3555             |               |      |                  |               |                                  |      |                |                |      |    |              |     |   |  |            |  |         |  |
| 3                | 2       | G "         | 60    | 5926000        | 4350             | 70.00         | 3045 | 3.20             | 139           | 16.00                            | 697  | 9.60           | 418            | 1.00 | 44 |              |     |   |  |            |  |         |  |
| 4                | 4       | J ♀         | 85    | 6690000        | 3444             | 59.36         | 1975 | .27              | 10            | 33.5                             | 1154 | 7.90           | 272            | .80  | 28 |              |     | 25 days after parturition   |  |            |  |         |  |
| 5                | 6       | J gr. "     | 55    | 5701000        | 3888             |               |      |                  |               |                                  |      |                |                |      |    |              |     | 5th month of gestation  |  |            |  |         |  |
| 6                | 3       | " "         | 57    | 6156000        | 4944             | 31.00         | 1532 | .60              | 30            | 42.80                            | 2116 | 24.40          | 1206           | 1.20 | 59 |              |     | 7th week after parturition  |  |            |  |         |  |
| 7                | 2       | " "         | 54    | 7920000        | 10610            | 65.00         | 6696 | 1.40             | 149           | 21.00                            | 2228 | 12.00          | 1273           | .60  | 64 |              |     | 6th " of gestation  |  |            |  |         |  |
| 8                | 8       | " "         | 55    | 5724000        | 6166             | 52.20         | 3218 | 1.70             | 105           | 37.60                            | 2318 | 7.30           | 451            | 1.20 | 74 |              |     | 2 months after parturition  |  |            |  |         |  |
| 10               | 6       | G gr. "     |       | 5117000        | 2349             | 76.10         | 1787 | 1.50             | 36            | 13.20                            | 310  | 8.10           | 190            | 1.10 | 26 |              |     | " " "   |  |            |  |         |  |
| 11               | 4       | H "         | 55    | 6748000        | 4886             | 56.00         | 2737 | 1.50             | 73            | 30.00                            | 1466 | 12.00          | 587            | .50  | 24 |              |     | 10 weeks " "  |  |            |  |         |  |
| 12               | 6       | " "         | 57    | 5731000        | 6000             | 52.00         | 3120 | .50              | 50            | 36.40                            | 2184 | 10.90          | 654            | .20  | 12 |              |     | 7th month of gestation  |  |            |  |         |  |
| 13               | 3       | " "         | 62    | 6204000        | 3110             | 64.54         | 2008 | 1.19             | 37            | 21.80                            | 678  | 11.60          | 361            | .75  | 23 |              |     | 5th month after parturition                                       |  |            |  |         |  |
| 16               | 9       | J H gr. "   | 80    | 5908000        | 6455             | 44.50         | 2872 | 1.60             | 103           | 26.90                            | 1796 | 26.00          | 1678           | 1.00 | 64 |              |     | 4th " " "   |  |            |  |         |  |
| 17               | 5       | H "         | 65    | 6010000        | 5777             | 39.70         | 2393 | 3.30             | 191           | 30.99                            | 2305 | 16.40          | 948            | .70  | 40 |              |     | 3d " of gestation   |  |            |  |         |  |
| 18               | 4       | " "         | 45    | 5632000        | 7000             | 44.10         | 3087 | .60              | 42            | 28.50                            | 1995 | 26.50          | 1858           | .30  | 21 |              |     | " " after parturition   |  |            |  |         |  |
| 19               | 5       | " "         | 57    | 6711000        | 10277            | 39.80         | 4090 | 1.90             | 195           | 45.80                            | 4707 | 12.30          | 1264           | .20  | 21 |              |     | " " "   |  |            |  |         |  |
| 21               | 7       | " "         | 48    | 5504000        | 4777             | 48.10         | 2198 | 1.00             | 47            | 39.10                            | 1868 | 11.60          | 584            | .20  | 10 |              |     | 3d " " "  |  |            |  |         |  |
| 22               | 4       | " "         | 60    | 6760000        | 5666             | 43.00         | 2426 | 2.90             | 164           | 41.60                            | 2357 | 11.90          | 674            | .40  | 22 |              |     | 4th " of gestation  |  |            |  |         |  |
| 23               | 3       | " "         | 65    | 6732000        | 5000             | 57.00         | 2850 | .80              | 40            | 24.60                            | 1230 | 17.30          | 865            | .30  | 15 |              |     | 3d " " "  |  |            |  |         |  |
| 24               | 3       | " "         | 55    | 6524000        | 5444             | 61.30         | 3337 | 2.00             | 109           | 26.30                            | 1452 | 10.30          | 581            | .10  | 5  |              |     | 2d " " "  |  |            |  |         |  |
| 25               | 2       | Ayr. "      | 55    | 6553000        | 7110             | 59.50         | 4230 | 1.80             | 128           | 28.50                            | 2037 | 9.90           | 704            | .30  | 21 |              |     | 2d " " "  |  |            |  |         |  |
|                  | Average |             | 59.75 | 6152619        | 5486             | 54.22         | 2992 | 1.47             | 86            | 30.49                            | 1786 | 13.15          | 772            | .59  | 31 |              |     |   |  |            |  |         |  |
| Pathologic Cases |         |             |       |                |                  |               |      |                  |               |                                  |      |                |                |      |    |              |     |   |  |            |  |         |  |
| 9                | J ♀     |             | 60    | 5274000        | 4666             | 66.00         | 3080 | .28              | 13            | 32.40                            | 1672 | .85            | 40             | .38  | 18 |              |     | Joint Abscess   |  |            |  |         |  |
| 14               | 4       | D gr. "     | 87    | 7048000        | 4732             | 53.20         | 2572 | 3.90             | 184           | 30.10                            | 1421 | 12.40          | 586            | .30  | 14 |              |     | Rheumatism  |  |            |  |         |  |
| 15               | H "     |             | 58    | 5443500        | 7222             | 33.60         | 3148 | .36              | 26            | 53.10                            | 3885 | 2.27           | 164            | .52  | 39 |              |     | Actinomycosis on jaw (?)  |  |            |  |         |  |
| 20               | 5       | G "         | 65    | 5416000        | 5055             | 39.10         | 1976 | 3.30             | 167           | 41.70                            | 2108 | 15.60          | 789            | .30  | 15 |              |     | Impaction of 3d stomach and a wire perforating wall of reticulum. |  |            |  |         |  |
| 20               | " "     |             | "     | 7196000        | 4110             | 64.60         | 3728 | 1.40             | 58            | 38.70                            | 1180 | 1.60           | 28             | .20  | 16 |              |     |   |  |            |  |         |  |

## SUMMARY.

(1) In the blood of the normal the red corpuscles were found to average 6,152,689 per cubic m.m.; maximum 7,920,000; minimum 4,818,000.

(2) The average percentage of hæmoglobin was 59.75; maximum 85; minimum 45.

(3) The average number of leucocytes was 5,486 per cubic m.m.; maximum 10,610; minimum 2,349.

(4) Of the five varieties of leucocytes the average, maximum and minimum numbers per cubic m.m., and percentages, were found to be as follows:

|                                       | Number. | Per Cent. |
|---------------------------------------|---------|-----------|
| Lymphocytes, average . . . . .        | 2,992   | 54.22     |
| maximum . . . . .                     | 6,896   | 76.10     |
| minimum . . . . .                     | 1,532   | 31.00     |
| Large mononuclears, average . . . . . | 86      | 1.47      |
| maximum . . . . .                     | 195     | 3.30      |
| minimum . . . . .                     | 9       | 0.21      |
| Polynuclears, average. . . . .        | 1,786   | 30.49     |
| maximum . . . . .                     | 4,707   | 45.80     |
| minimum. . . . .                      | 310     | 13.20     |
| Eosinophiles, average. . . . .        | 772     | 13.15     |
| maximum. . . . .                      | 1,855   | 26.50     |
| minimum. . . . .                      | 171     | 3.89      |
| Mast cells, average . . . . .         | 31      | 0.59      |
| maximum . . . . .                     | 74      | 1.20      |
| minimum . . . . .                     | 5       | 0.10      |

## PATHOLOGICAL CASES.

No. 9. The cow was a Jersey, five years of age, and had been very lame for several days in right hind leg. At the stifle joint was an enlargement which later proved to be an abscess. At time of making the blood examination recorded, animal was somewhat emaciated.

No. 14. Grade Shorthorn cow, in good condition, but showing general stiffness and lameness. Case was diagnosed as rheumatism.

|    |   |    |   |    |      |      |      |      |      |     |     |       |      |       |     |    |    |   |
|----|---|----|---|----|------|------|------|------|------|-----|-----|-------|------|-------|-----|----|----|---|
| 17 | 4 | 48 | " | 87 | 1048 | 000  | 4732 | 6320 | 2512 | 390 | 184 | 30.10 | 1421 | 12.40 | 586 | 30 | 14 | Rheumatism  |
| 15 | H | "  | " | 58 | 5442 | 500  | 7222 | 4260 | 3148 | 36  | 26  | 53.10 | 3885 | 2.27  | 164 | 52 | 39 | Actinomycosis on jaw (?)  |
| 20 | 5 | G  | " | 65 | 5416 | 000  | 5055 | 3910 | 1976 | 330 | 167 | 44.70 | 2108 | 15.60 | 789 | 30 | 15 | Impaction of 3d stomach and a wire perforating wall of reticulum. |
| 20 | " | "  | " | "  | "    | 7196 | 000  | 4110 | 3778 | 142 | 58  | 48.70 | 1180 | 1.00  | 78  | 50 | 16 |   |

No. 15. Holstein grade cow, in good condition, with abscess on lower jaw, which was diagnosed as actinomycosis. Abscess had been present for some time, and at time of blood examination it had broken and there was some discharge. The total number of red and white cells is within the normal limits. There is a polynuclear leucocytosis with a marked decrease in the eosinophiles.

No. 20. A grade Guernsey cow, in fine condition, at about the eighth month of gestation. There was impaction of the third stomach: later the animal died and upon post-mortem a piece of wire was found penetrating the walls of the reticulum. Two counts were made, the second four days after the first, during this time purgatives had been administered. At the time of the first examination the number of leucocytes was not increased, but the numbers of the different varieties were not normal. The polynuclears showed both an absolute and a relative increase due to inflammation from presence of foreign body. At time of second count the increase in red cells shows concentration of blood due to action of purgatives. The lymphocytes show an increase, while all other varieties, especially the eosinophiles, show a decrease.

In conclusion, we desire to express our thanks and appreciation to Drs. V. A. Moore and S. H. Burnett for their advice and assistance in making these examinations. We also desire to thank Prof. H. H. Wing for the use of the animals of the dairy herd, and Drs. James Law and W. L. Williams for the use of the subjects in their clinics.

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DR. A. J. FARLEY, an inspector for several years at So. St. Joseph, has been transferred to San Francisco, Cal.

FAR FETCHED.—*Chicago, May 12.*—"Egyptology vs. Health" was the title of a monograph received at the headquarters of the Tuberculosis Institute of Chicago yesterday, in which it was alleged that the great spread of tuberculosis in Europe and America in the last 100 years found its causation in the disinterment and shipment broadcast over the land of the mummies which had reposed so long in the tombs of the Pharaohs. The monograph was written by Dr. Rafaele Sorgnac, one of the lecturers at the Sorbonne in Paris, who was an interested visitor at the recent tuberculosis exhibit in this city. "That the disinterred mummies started the spread of the tuberculosis germs in Egypt cannot be doubted," says Dr. Sorgnac in his monograph. "These germs live for thousands of years, as has easily been proved, and the exhumation of the bodies, even the well preserved ones, caused an epidemic of consumption among the workmen and scholars who first exhumed the cases. It is also well known that the keepers of the mummy cases have been subject to the disease. The start of tuberculosis in France in a serious sense may be traced to the great importation of mummies."

## THE OFFICIAL VETERINARIAN AT HORSE SHOWS.

BY F. C. GRENSIDE, V. S., NEW YORK CITY.

Read before the Veterinary Medical Association of New York County, April, 1906.

Now that horse shows have become so widespread and numerous throughout this country, a new field has been opened to members of the veterinary profession to act as veterinary inspectors at these shows. Horse show executive committees appear to find it necessary to have one or more veterinarians in the ring to whom certain questions can be referred if occasion arises.

The reasons that they have found this necessary are twofold: one is that many men that act in the capacity of judges are not really competent when it comes to the question of size, age, the determination of practical soundness, or of hereditary unsoundness.

The other is that, even although the judges are thoroughly practical men, such as one would not be afraid to give the commission for the purchase of a show horse with the confidence that they would not be likely to make any serious mistake with regard to soundness, still, such men's opinion might not be accepted as authoritative on soundness, and if any important question arose a dissatisfied exhibitor may make the claim that the judge is not a recognized authority on the question of soundness from the fact that he is not a qualified veterinarian.

In order then to make their position unassailable, executive committees prefer to have a board of veterinary inspectors to refer disputed points to that come within their province.

The position of the veterinarian in the show ring is by no means always a pleasant one. Circumstances every now and then arise that make it extremely disagreeable, and if the official does not use good judgment he is apt to stultify himself, injure his reputation, and cause reflection upon the profession. The great thing is to be right in an opinion, for although it may annoy an exhibitor at the time to be decided against, he will respect the giver of the opinion all the more when he finds out



he was right ; in fact if he does not decide against him he will be apt to laugh at the veterinarian and crow at his cleverness in deceiving him. Not only will the exhibitor of the animal in question have his opinion lowered as to the judgment of the giver of the opinion, but the other exhibitors have just cause for complaint, which, as a rule, they are not slow to express.

Many exhibitors who are not practical horsemen are apt to form erroneous opinions as to the questions of lameness, practical soundness, or the height of an exhibit, and it is often difficult to prove to them, the correctness of an opinion given, as their prejudice is apt to be the other way. We have already stated that it is very important that an opinion given shall be correct, but it is by no means an easy matter if not sometimes impossible with the limited opportunities afforded in the show ring for examination, not to fall into error.

For instance if a judge suspects a horse of being lame and seeks the veterinarian's advice, the tactful official first of all tries to form an opinion without drawing the public's attention to the fact that an exhibit is under suspicion. Exhibitors as a rule are very sensitive about having the public's attention directed to the fact that a horse of theirs is under suspicion of being lame whether rightly or wrongly, so that the veterinarian tries to save their feelings all he can, and simply observes the horse being driven or ridden in the most undemonstrative manner he possibly can. It is sometimes possible to come to a conclusion in this casual way, but as a rule it is not, and the official veterinarian is foolish to take the chance of making a mistake in any doubtful case simply out of consideration for an exhibitor's feelings. No experienced veterinarian would take the chance of giving an opinion as to whether a horse is going sound or not in a case of examination for soundness for a client without seeing the subject jog in hand. This of course is not practicable in the show ring only in exceptional cases, hence one of the difficulties of the position. One then has to take advantage of available means to endeavor to form a correct opinion. In doubtful cases the bearing-rein should be unhooked, and the

horse driven with a loose rein at a slow pace, and it is often well for the inspector to take the reins in his own hands so that he can let the horse go in the way he wants him to. Sitting in the vehicle behind the suspected horse gives a more favorable opportunity to come to a correct conclusion than can be had standing on the ground, particularly if the lameness is thought to be behind.

We must not lose sight of the fact that horses "pulled together" with sharp bits, and borne up with tight bearing-reins often get sore mouths which sometimes put them off their balance, causing them to "hitch," or it may be to go irregularly in front, giving observers the impression that they are lame. Irregularity of the gait from this cause is intensified in small rings with sharp turns.

Some people take the view that a horse that shows irregularity of his gait either in front or behind should be considered as a lame horse in the show ring. If this view were accepted judges would often find themselves in embarrassing positions towards the end of the show when championship classes come on. I have seen at Madison Square Garden Show several of the candidates for championship honors out of a small class of three or four, "hitch" most of the time. They were "stirred up" to the highest pitch, "pulled together" by the driver to show all the action and style there was in them.

This being a little overdone is apt to put them off their balance and cause them to "hitch" especially if their mouths are sore.

A judge noticing irregularity of the gait of a horse is very apt to turn to the veterinarian and ask for a decision as to whether the subject is lame or not. If the Inspector cannot satisfy himself one way or the other when the horse is given a loose head, and driven at a slow trot, he is justified in giving the Exhibitor the option of having his horse unhitched and tried in hand, and if he will not submit to that, he must be excluded as a lame horse. No fault can then be found with the veterinarian as he has given the exhibitor a fair chance, and

has not committed himself beyond giving the opinion that the case is a suspicious one.

It is very embarrassing to an official acting in this capacity to have condemned a horse as lame in the ring, shown to him going sound, on the outside, in hand. If a horse is not lame when jogged in hand, he can hardly be considered a lame horse. Irregularity of the gait if it cannot be determined as arising from unsoundness is for the judge to pass upon, not the veterinarian. If a horse's way of going is defective and is not the result of unsoundness, it detracts from his merit, but does not exclude him from competition as lameness does.

The rules of nearly all horse shows only call for practical soundness. This is generally conceived to mean that a horse is not the subject of any diseased condition likely to interfere with his usefulness. It really means with many judges that if the horse does not go wrong in the ring, his soundness is not questioned.

Many judges never ask the veterinarian's opinion unless they think a horse is going lame, is wrong in the wind, or is not within the limits of height called for. As a matter of fact it is not so very common for horses to go on taking prizes month after month, and sometimes year after year, that would not go sound on the halter, on a hard road, and if they did any regular work would soon be used up; but they are game horses, usually with speed, and when they are stirred up, and pulled together, they will not show lameness of which they may be the victims, unless it is fairly pronounced. Many members of the veterinary profession do not recognize the fact that there is such a thing as lameness resulting from soreness of the mouth. Thirty years' experience has taught me that there is such a thing, and that it is not so very uncommon, especially in the show ring.

Some may take the view, that if a horse goes lame, even if it is from the mouth, that it renders him ineligible to a prize. However, this may be it is important for the veterinary inspector to discriminate between lameness, the result of disease of a

limb, and lameness due to discomfort in connection with the mouth. If he does not do so, he is apt to be confronted with an irate owner who insists upon him going to see his horse jogged in hand, outside of the ring. If the horse previously condemned in the ring, as lame, goes sound in hand, it is very embarrassing to the veterinarian, and is apt to be confusing to the laymen witnessing the case, unless the veterinarian is ready with an explanation. A horse may strike himself in the ring causing him to go temporarily lame, so that it is well to give a suspected exhibit a little time to recover from the injury before condemning him, or the veterinarian may be able to determine and point out the seat and evidence of a self-inflicted injury; so that the judges would have the responsibility of deciding whether they would reject a horse for a temporary trouble originated in the ring.

In the case of a saddle horse suspected of lameness, it is not wise to condemn him without taking the saddle off, as a tender spot under it will make some horses show irregularity of the gait. The veterinarian for his own protection should see that the party who jogs the horse, only has hold of the bridoon rein, and makes the horse carry his head straight. I have seen a saddle horse thrown out as unsound from no other reason than that the man who led him in jogging took hold of the rein attached to a sharp curb bit, causing the horse to nod his head. I have recently seen a horse go lame near hind from a crupper sore. Why he showed it near hind and not off I cannot explain, but as soon as the crupper was taken off he went sound.

To revert to the question of mouth lameness and as an illustration of its illusiveness, I may describe the behavior of a horse that undoubtedly was the victim of this form of lameness. He was shown to me by a dealer, for sale. I liked the horse on the halter, he jogged sound, so I asked the owner to hitch him. On driving he showed lameness forward, which the dealer could not help acknowledging. I noticed he had an unsteady, unmade light mouth, which I thought accounted for the irregularity of his gait, but cooled him out for half an hour, and

then had him jogged again in hand when he went sound, so I bought him for a comparatively low figure. I soon had him driving sound in single harness with a stiff rubber Mullins Mouthpiece Liverpool Bit, and won ribbons with him. I never succeeded, however, in getting him to go sound when driven on the near side in double harness, but he would go all right on the off side. Had I kept him longer, worked him steadily, and gotten his mouth in perfect condition, I think he would ultimately have driven sound on near side as well as off.

When we come to think over and review these somewhat exceptional cases and contemplate the limited opportunities a Horse Show Veterinary Inspector has for determining their true merits, we begin to realize the difficulties of the position. If we err it is better in doubtful cases to give the exhibitor the benefit of the doubt. We should remember that show horses are hard to get, very difficult to keep in show shape, and some are subjected to some very trying ordeals during a week's show, in exhibiting in a great many classes, so we should make some allowance if possible.

The question of a horse's height often gives rise to trouble. One would think it a comparatively easy thing to determine pretty accurately the height of a horse, but we have a report from a prominent Western show of a veterinarian measuring a fifteen hand horse fifteen three. One would think there must be some exaggeration about this statement, but it was never contradicted, and I had it substantially confirmed by a reliable eye witness. If the veterinarian allows a crafty exhibitor to stand a horse just as he likes, he may put him a couple of inches out.

The question of the soundness, or unsoundness of a horse's wind often causes debate in a show ring, but judging from what one frequently hears from the ring side a considerable degree of liberality is shown exhibitors. Doubtless a great deal of the roaring one hears is due to compression, from pulling, and sometimes to gagging from high checking, but not infrequently a horse gets away with a ribbon that few veterinarians would



pass if they were examining him for a client, and it would be interesting and useful if this association would lay down a rule to guide one in determining what to accept or reject for practical soundness of wind in the ring, and also, as to whether any medicinal agent can be given to successfully stop roaring temporarily, so as to mislead the inspector.

TOPEKA BARS "MUCK RAKE" BOOKS.—*Topeka, June 29.*—Upton Sinclair's book, "The Jungle," that caused the investigation of conditions in the packing houses of the country, has been barred from the Topeka public library. The committee in refusing to order the book reported that its general repulsiveness made it unfit to be read. Hereafter all "muck rake" publications will be under the ban of the library committee. There have been many requests for the book since the investigations were begun.

THE GOVERNMENT INTRODUCES INDIAN CATTLE.—A large herd, principally bulls, of Zebu cattle have been brought from India to cross with Texas cattle with the object of improving the latter. Forty-nine bulls, several heifers, and a few cows are now at the United States Quarantine Station in New Jersey, and when their probation has been completed will be sent to their destination. Some years ago a single bull of this breed was sent to Texas, and his impression was so marked upon the native stock that a renewal of the experiment has been undertaken upon a larger scale.

"THE JUNGLE."—To get at the gist of the condemned meat industry facts recently published, it becomes necessary to read the visceral production of modern fiction, "The Jungle." A socialistic effort, portraying the worst side of a foreigner's attempt to provide for a family of ten or more souls at Chicago abattoir wages. The book is safe for the optimist, but it is not fit for children to peruse; horrible depictions, vile language and many vilifications entitle its suppression; it can, however, still be secured in the open market. *Everybody's Magazine* for May and the *Saturday Evening Post* during the same month, have been the mediums through which some interesting controversy passed, but only between the parties directly concerned. The Beveridge Bill having become a law opens another field for the veterinarian. "It's an ill wind that blows no good." Has "The Jungle" anything to do with it?—(*L. E. Willyoung.*)

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**ABORTION IN COWS.**

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Indexed.

BY DR. DAVID ROBERTS, CATTLE SPECIALIST, WAUKESHA, WISCONSIN.

Read at the Annual Meeting of the Wisconsin Society of Veterinary Graduates,  
February 8, 1906.

Abortion in cows exists in all parts of the United States, Canada, Mexico and Europe. It is exceedingly prevalent in the United States, where there are at present over seventeen million milch cows, and a large per cent. of these are thus afflicted yearly.

The damage done to a cow thus afflicted amounts to from \$12.00 to \$25.00 per annum. Thus the loss to breeders throughout the United States is a tremendous one.

Abortion in cows may be due to three general causes :

(1) Abortion in cows may be due to accidents of various nature, but the loss brought about by the small per cent. of abortion due to this cause would scarcely be noticed by the breeders of this country.

(2) Abortion may be due to a physical weakness of the genital organs of either cow or bull or both.

The loss caused by this condition is much greater than by accident and has a greater tendency to lead on to a more serious nature of the disease; but all cases of abortion have a tendency to lead on to the infectious form. It should not be understood by the term physical weakness of either dam or sire that they must necessarily be thin, weak and emaciated, but on the contrary they may be the picture of health and still be physical wrecks as far as breeding is concerned. While this is a serious condition of breeding animals it does not begin to be as serious a condition as the third and last cause of abortion in cows, which is due to infection.

Abortion due to physical weakness and infection can be positively prevented and cured.

Infectious abortion in cows is due to a germ. This germ is contained in the mother's blood, the afterbirth and the bowels of the foetus. It is for this reason that the afterbirth is so often

retained, and prematurely born calves usually die of scours or diarrhœa. It has repeatedly been noticed that a calf thus afflicted when taken into a healthy herd invariably causes infectious abortion, the germ being carried in the excrement of the calf. Again, infectious abortion may be the result of chronic uterine catarrh.

This may be and often is due to retention of the after-birth, which is due to the physical weakness referred to.

If the afterbirth is allowed to remain until it sloughs away it is in this way converted into matter of which a part is expelled from the vulva and the balance absorbed by the cow.

This condition leaves the womb and vagina to act as a hot bed for the germs of abortion to propagate and multiply. If a healthy bull be allowed to serve a cow in this condition he will become infected, and if bred to a healthy cow or heifer he will then infect them and they will not only be in condition to infect other bulls which may be bred to them, but are very liable to abort at any stage of pregnancy. The period at which they are most liable to abort is between the fifth and seventh months.

If a calf be prematurely born, and lives, it will be noticed to be very quiet and sleepy most of the time until it reaches the period at which time it would have been born had it been carried full time. It will then undergo a noticeable change as if to awaken from its drowsiness. These cases are known as living abortions.

The only noticeable difference between a calf of this kind and one which has been carried full time, would be its under-size, sunken eyes and enlargement of the glands of the throat.

A cow afflicted with the germs of abortion may be bred, and conceive, her calf may be carried for a period of about three months, at which time the naval cord may become so diseased by the collection of germs as to shut off circulation from mother to foetus, thus causing the death of the latter. This may occur at any stage of pregnancy.

But as nature has not provided for contraction of the womb upon so small a body as the foetus is at this stage of pregnancy,

the foetus may be carried in a mummified condition for many months to the full period of gestation, and even longer.

The only noticeable symptoms later on will be a protrusion of a small portion of the afterbirth, and on examining the cow the mummified foetus may be found usually forced into the vagina. On removing same it will be noticed that the foetus may have taken on a perfect shape, being well preserved, having no disagreeable odor.

The only thing indicating the age of the foetus and the length of time it has been carried will be its empty eye sockets.

The cow during the entire period of gestation takes on every appearance of barrenness except that she does not come in heat.

However, this is not a common occurrence, but is mentioned as an illustration of how the foetus may be destroyed by the germs of abortion without any apparent discomfort to the mother.

The germs of abortion may lie dormant in the vagina and womb of a cow for months and even years. For instance, a cow may abort at any stage of pregnancy and then be kept from being bred even nine months or longer, and then, if bred at that period she may conceive, but as soon as conception takes place the germs of abortion, which have been lying dormant in the womb, will be revived, and soon get in their deadly work, causing her to abort again at a very early stage of gestation.

The difference between an immune herd of cows afflicted with abortion and a herd that has received the proper treatment is this: any herd of cows, regardless of breed (as abortion seems to afflict all breeds of cows), may be afflicted with infectious abortion one after another. They will abort usually until each one has aborted from one to four times, but usually a few cows carry their calves full time, while in the midst of others that abort. They seem to be very little inconvenienced, but they are at the same time much afflicted with the germs.

Possibly the most noticeable damage done to them is a shortage of milk, and oftentimes barrenness. After one of these cows has aborted several times she apparently becomes

immune. She may carry her calf full time. It may, and often does live, unless afflicted with scours, which is often the case in an immune herd. The cow's milk may be short in quantity and poor in quality, thus being a non-profit producer.

Any new cows added to the herd will become infected from the herd ; will abort the usual number of times, and then become immune like the balance of the herd.

The heifers that grow up and conceive will become infected and will abort the usual number of times, and will then become immune.

If cow, heifer, bull or calf be sold out of a herd thus afflicted it will carry the disease to a healthy herd regardless of distance.

If a new healthy bull be purchased and placed at the head of a herd thus afflicted, he will upon being bred to any of the cows in the herd become infected, and then be in a condition to infect all heifers of the herd or cows brought in from neighboring herds.

In this way abortion may continue indefinitely.

A cow should properly clean after calving. She should come in heat at regular intervals and get with calf when bred. The calves should not be afflicted with scours and can be sold and shipped to any part of the world absolutely safe and without danger of infecting other herds.

The proper treatment will destroy the germs of abortion ; it will by so doing put a cow in a perfectly healthy condition, making her a profit producer, enabling her to give birth to a strong, healthy, live calf at full time, also give a natural flow of milk, which a cow afflicted with the germs of abortion cannot do.

It matters not what breed of cows may be afflicted, how large a herd may be, how many head have aborted, or how long they have had abortion, among them, it can be prevented and cured.

Abortion is a premature expulsion of a foetus at a stage when it has not attained sufficient development to live external to its



mother, and is caused by an interruption of the natural condition of pregnancy.

In the modern way of thinking, disease is a disturbance of the natural play of one or different parts of the body; the reaction of an unaccustomed influence, and according to the germ theory, the foreign influence producing this disturbance is the existence of a germ in the interior of the animal body.

When germs vegetate or multiply in the animal's body there occurs a struggle for life between the germs and the animal cells.

In abortion this battle produces outward symptoms, such as swelling of the udder and vulva, which is an evidence that the struggle exists within the body, and it must result in the victory of one or the other. If the battle is won by the animal cells the disease is checked and the animal is restored to health and the symptoms, such as swelling of the udder and vulva, will disappear, while if the germs win the animal will remain diseased and the symptoms will be noticeable, and unless interfered with the cow will abort.

Abortion is due to a germ, and therefore infectious, and can be easily proven by any one who wishes to make the experiment, such as soaking a wad of cotton in the fluid of a cow that has recently aborted, then placing it in the vagina of a healthy pregnant cow, allowing it to remain five minutes. It will be noticed that she will become infected and show symptoms such as swelling of the udder and vulva and will abort in a certain number of days; while if a cow meets with an accident or receives an injury which would cause abortion, a wad of cotton may be dipped in the fluid from her and taken to an uninfected herd and placed in the vagina of an uninfected cow, allowing same to remain five minutes, without bad results.

With similar experiments it has been positively proven beyond all doubt that abortion in cows is due to a germ and therefore must be treated as a germ disease. From valuable information and experience gathered from bright and intelligent veterinarians, and stock raisers throughout the United States

and Europe, a positive knowledge has been reached as to how this disease should be handled in order to wipe it out.

When a herd becomes infected with the germs of abortion cows and heifers are liable to abort at any stage of pregnancy, but the largest per cent. aborts from the 4th to the 7th month ; some aborting as early as the first month of pregnancy, and are at the same time liable to come in heat the following day, indicating a congested, irritated, abnormal and diseased condition of the genital organs.

Bulls bred to such a cow or heifer invariably become infected and are then in condition to spread the disease through the entire herd.

As soon as the symptoms of abortion, such as swelling of the udder and vulva, manifest themselves, the cow should be removed and isolated and given prompt attention and treatment until the symptoms of abortion, such as swelling of the udder and vulva, have disappeared ; she may then be returned to the balance of the herd.

In case she aborts the foetus and the envelopes should be burned or buried deeply. The stables and stalls and premises where this cow has been or is at present should be thoroughly disinfected with a powerful germ destroyer. The roots of the tail and vulva and hindquarters should be thoroughly disinfected daily.

The vagina should be thoroughly washed with a non-poisonous, non-irritating, soothing and healing antiseptic solution. This washing should be continued once daily, until all discharges cease.

No cow or heifer should be bred until it would be time for them to give birth to a calf had they carried it full time and not then unless they are free from any discharge and in a strong, healthy, breeding condition.

Clip the hair from the point of the sheath of the herd bull and wash out the sheath once a week and after each service with a non-irritating, soothing and healing antiseptic solution, in this manner preventing the spread of the disease.

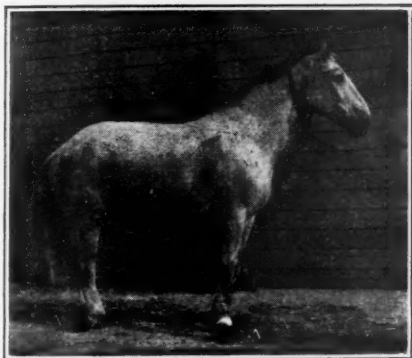
## REPORTS OF CASES.

*"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."*

### PARALYSIS OF THE PERONEUS NERVE.

By C. M. HARING, D. V. M., University of California, Berkeley, Cal.

Dollar, in his translation of Möller's "Operative Veterinary Surgery," says that no accurate observations have yet been recorded of paralysis of the peroneus nerve. In view of this the following case may be of some interest:



A Percheron gelding, aged about fourteen years, had been employed for a long time at heavy drafting in a lumber yard. Without apparent cause, he began to lose the use of the off hind leg. The first that was noticed of the trouble, according to the owner, was an occasional knuckling over while walk-

ing. The frequency and severity of the knuckling gradually increased, the leg sometimes giving way so that the lower end of the cannon bone and anterior of the fetlock would strike the ground.

On June 10th., when first called to see the horse, the knuckling was very marked, the animal being unable, without assistance, to extend the pedis sufficiently to plant the sole on the ground. While at rest the hock remained extended and the fetlock flexed as shown in the photograph. In stepping he rested on the toe, and after going a few paces walked on the coronet and lower end of the cannon bone. The power to flex the hock was not as great as in the other leg although there was some movement. Perhaps this was produced by the flexing of the stifle. The control of the stifle and femero coxygeal joints seemed perfect and there was power to strike or kick backward and to draw up the leg. In walking the quarter was not lifted abnormally high, which Möller says would be a result of paralysis of the nerve. No atrophy of any of the muscles could be detected. An unfavorable prognosis was given. As the animal

was useless and failed to improve, he was killed about five weeks after the appearance of the first symptoms. A careful dissection of the leg failed to reveal any lesions.

#### IDIOSYNCRASY OR OVERDOSE.

By W. E. A. WYMAN, M. D. V., V. S., Covington, Ky.

Subject, running horse, aged 4; cryptorchid.

*Diagnosis*:—Double catarrhal pneumonia. Temperature 105.3 to 106.2 for first four days, gradually returning to normal on ninth day.

*Treatment*:—Antiphlogistine to chest. Heroin hydroch., gr. iv; fl.-extr. ipecac,  $\bar{3}$  i, and ammonium carbonate,  $\bar{3}$  iv, in  $\bar{3}$  x acacia emulsion. One tablespoon every four hours. Quinine sulphate, with strychnine, one powder three times daily. Once daily nuclein, 20 c.c., intravenously. Feed: Oats, hay, grass. Appetite fair.

From the beginning on the animal was somewhat costive. For that reason he got within twenty-four hours, starting June 27, calomel  $\bar{3}$  iss, with sodium bicarbonate  $\bar{3}$  iij, in powder form. Also clysters of pure water, about one gallon, every four hours, about bloodwarm. On June 28 the animal salivated profusely, smelling very foul, lips and cheeks swollen some, palate very pale with hæmorrhagic streaks at intervals over the bars; mucous membrane above upper incisors and below lower incisors, œdematous and brick red. Tongue stiff, contracted, very pale; region of frænum œdematous and dark red brick color. At no time did the gums bleed easily nor loosening of teeth. July 4, case sufficiently advanced to be discharged. *Treatment*:—Hypodermics of atropine and strychnine, swabbing three times daily for three days with adrenalin, 1:10000;  $H_2O_2$  (25%) irrigation, followed by copious and very frequent iced water irrigations. June 29, 30, and July 1 the animal could not drink nor eat and was satisfied by œsophageal intubation. Began to eat fairly well July 2. The writer has employed calomel a great many times in such cases as the above, but this has been the first untoward effect, the first case of mercurialism, encountered.

#### DOUBLE IMPREGNATION BY DIFFERENT SPECIES.

By C. H. GAINES, D. V. S., Chilhowee, Mo.

I was called to the farm of Mr. G. Mullins, four miles north of this town, on April 14 last to see a mare with suspected inversion of the uterus. Upon arrival I found a small gray mare,

14 or 15 years old, which had just foaled two colts, and had adherent placenta, which had caused the owner to suppose the womb had turned inside out.

The remarkable point about this case is that one of the foals was a mule, and two days before term. It breathed a few times and died. The other was a horse colt, 38 days before term. The horse colt was dead at birth. The dates at which the colts should have been born are estimated from the dates of the two breedings. There were 36 days between breedings.

THE death from accidental diseases of two famous Hackney stallions in one month, owned by Elsinore Stock Farm (Harvey S. Ladew, proprietor), Glen Cove L. I., is extremely unusual and unfortunate. "Moncrieffe Vengeance," champion Hackney stallion at the last Madison Square Horse Show, died early in June of strangulated scrotal hernia, and at the end of the month "Sancton Squire," by the American champion heavy harness horse, "Forest King," succumbed to intussusception.

THE annual meeting of the Missouri Valley Veterinary Association, held in Omaha, June 18th and 19th, was largely attended and enthusiasm marked the proceedings. Many members were prevented from attending owing to the large volume of practice being done this season, which is greater than ever before. All present were initiated into the mysteries of the "Ak-Sar-Ben" on the evening of the first day. The meeting continued for two full days and was terminated by a banquet. The semi-annual meeting will be held in Kansas City in October.

THE RECORD FOR TUMORS.—*Springfield, Mass.*—A most unusual surgical operation was performed last Thursday at the Springfield hospital upon Mrs. Annie D. Hodgerny. A cystic tumor, the weight of which was greater than the normal weight of the woman, was removed as a last resort to save the woman's life. The effort proved unavailing, however, death following the day after the operation. The tumor taken from the woman weighed about 190 pounds, of which 156 was fluid. It is believed that the cyst had its beginning six or seven years ago. The woman weighed then about 180 pounds and her weight gradually increased until she developed the most remarkable growth of the kind which history records. So far as is known, the largest tumor before known weighed from forty to fifty pounds less than this one.—(*Brooklyn Times.*)



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## SURGICAL ITEMS.

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BY DRs. LOUIS A. AND EDWARD MERILLAT, CHICAGO, ILL.

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### ON THE ETHICS OF HORSE DENTISTRY.

In an address delivered before the Pennsylvania State Veterinary Medical Association, published in the June number of the REVIEW, Prof. Williams tells us what's what in horse dentistry. He takes a deliberate aim at the author, the book and the teacher of dentistry, makes a few errors that procreate distrust in the accuracy of the deductions as a whole, and tinges the subject matter with a dash of ridicule that depreciates the grace of the discussion from the ethical standpoint. The oration, true enough in many places, is evidently born of a desire to correct some real and some fancied abuses to scientific veterinary surgery. It appears that the orator has information anent the practice of horse dentistry in America that leads him to question the judgment of the American veterinarian. According to Williams, the whole system of dentistry as practiced to-day is wrong, that the only demand of dental surgery in domestic animals is the diseased tooth and its sequelæ and that the filing or rasping process so commonly practiced is inimical to the well-being of animals in almost every instance. These conclusions are not without fault and are too radical to be taken seriously by the veterinary practitioner of to-day. Some will assent, some will dissent and the controversy, already old, will go on forever. Some veterinarians may even be so rude as to claim that they are equal to the task of judging the right from the wrong dental operation. Others may even decide after consulting their rusty knowledge of physiology and pathology that the whole problem is not such a brain-racking one after all and that a little common sense, as heretofore, will henceforth dominate their actions in dealing with their dental operations. Collectively, we are no worse nor no better in dealing with dentistry than with any of the other problems daily encountered in practice. If we are ignorant here we are ignorant there. If we are dishonest in dentistry we are probably also dishonest in other matters as well. It is not fair to use the lash of horse dentistry on the American veterinary practitioner. Whip with the whole subject if a chastisement is due. The *tooth-filing controversy*, old as the hills, touches a subject as well understood as any part of veterinary surgery. Every sensible practi-

tioner knows the limitations, the indications and the contra-indications of the tooth-filing operation, and there are, or at least soon will be, enough sensible veterinarians to protect it from abuse. It is only the professional horse dentist who urges the operation too frequently, and fortunately this creature is less numerous than formerly. Now-a-days, the general practitioner is consulted in the matter of dentistry on the animals under his charge and his decisions to operate or not to operate are based upon the same scientific principles that would govern his actions in dealing with any other treatment. Veterinary surgery is improving, advancing, progressing, and dentistry will not lag behind. It is only reasonable to suppose that the progress of the future will not fall behind that of the past few years. Horse dentistry is pretty safe in the hands of a progressive profession in a progressive country. The *tooth-filing specialist* is passing rapidly, as the horse-owning public under the instruction of the educated veterinarian, is learning gradually what Prof. Williams would have it learn at one stroke, thanks to the specially instructed student. Here and there, we may expect to see some so-called qualified veterinarians adopt dentistry as a specialty, and others over-recommend the art as a panacea for all ills, because of the inviting field it offers for faking a handsome monetary remuneration, but this circumstance is no ground whatever for trouncing a whole profession, a whole method, a whole branch of veterinary surgery. Are not the best medical colleges sometimes stigmatized by graduates who enter lines of practice or adopt methods of treatment that violate the laws of the medical profession? The fault here is that of the individual, not of the instruction.

The "*sharp-tooth-mania*" is not so very "deeply rooted," and it is not the "Most disgraceful feature of veterinary practice to-day," as Williams would have us believe, even though we do admit that much of the dentistry performed on horses is useless or, if you will, harmful. That the "Wholesale rasping and cutting away of horses' teeth" is senseless, useless and harmful, is not denied, but that the operation is practiced by the representative members of the profession in America, to the extent implied by this expression, we desire to flatly contradict) The veterinarians of the West, Middlewest and Northwest (the only ones with whom we have an intimate acquaintance, are not wholesale tooth-raspers. They are sensible, fairly well educated, professional men who learned as freshmen students that the sharp teeth found on all molars of all horses are a part

of the normal grinding apparatus and not universally harmful. Later in their college course they have learned that under certain circumstances "sharp teeth" require surgical interference, and this much no sane man will deny and all conservative veterinarians will concede.

The fact is, tooth-filing is often so strikingly effectual in correcting or preventing certain conditions that horsemen are easily led to believe that the operation is a universal necessity. The veterinarian who stands stubbornly to the position that the operation is always unnecessary drives the horseman to the blacksmith, the coachman, etc., to have the rasping done, as Ostertag admits is the case in Germany. Pshaw, the way we are becoming prey to the "foreign-made" theory is as sickening as it is an exemplification of our weakness. The way we swallow, digest, quote, and defend any old expression from over the water must make us appear as weak imitators in the eyes of our foreign colleagues. The American has taken time by the forelock and has demonstrated, not only the method, but also the good results of horse dentistry, and our foreign colleagues, slow to accept and always ready to snub or condemn American ideas, have never accepted tooth-filing as an operation worth teaching to the student.

Under certain circumstances tooth-filing is little less than an absolute necessity. For example, in "schooling" a *young coach horse* filing the first molars is a real help, a real necessity, otherwise the mouth becomes sore and prevents further training until healed. The second attempt wounds the mouth again and so on until the tough resulting scars afford adequate protection. The same might be said of the *roadster*, the *hunter* and the *park hack*. Men experienced in managing this class of horses know too well the value of tooth-filing to be deceived by any statement to the contrary. Imagine, if you can, the untenable position of a veterinarian who would attempt to prove the harmlessness of enamel points that repeatedly wound the seat of the bit, and imagine the success of a practitioner who would insist upon healing up these sores without removing their cause as a protection against future injury. True enough, as Williams suggests, these wounds will heal and leave harmless scars, but what is the behavior of the youngster while the mouth is being wounded over and over, and while nature is vainly attempting to lay down a tough sclerotic surface on the cheek to protect it against further injury, and what has been the result of the training? What might have developed into a fine

gaited saddle horse or a good "mouthed" coach horse has instead become a crazy-headed idiot. For this class of horses dentistry needs no defensive arguments among the experienced, and the novice soon learns its value. The veterinarian, practicing dentistry among running horses, whom Williams interviewed and from whom he wrung a confession of being a confidence man, is precisely like all men of his class. The same man would have been content with a bottle of colic medicine without knowing its contents or the method by which it brought results. If he had studied his art, if he had been properly taught, he would have been saved the humiliation of condoning his course upon any basis other than that his operations made it possible for the trainer to get the best possible speed out of his charges. In the race where competition is keen, the slightest abrasion in the mouth of a horse is a matter of no small moment. The thoroughbred horse is generally so sensitive, so fussy, so obstinate that his successful training is impossible until every sharp point capable of irritating or wounding the seat of the bit is removed. The self-confessed confidence man whom Williams calls a veterinarian was as ignorant of the good he did as he was of the harm he was capable of doing by filing the teeth too much and too often. The existence of this class of veterinarian shows plainly the need of better and more instruction in horse dentistry, instead of a campaign of education against the art. There is absolutely no danger from a man frank enough to make such a confession, were he properly educated.

The tooth-filing operation recommended above is, of course, a limited one. It consists of filing the buccal borders of the first and possibly the second superior molars and the anterior table angle of the first inferior molars. Its object is simply that of preventing the abrasions or simple irritations of the buccal mucosa which are so manifestly harmful to the class of horses above enumerated. It is generally unnecessary in the *farm horse*, the *draft horse*, *delivery wagon horse*, the *family horse* or any class of horses not closely bitted and rigged. Only occasionally a *fry horse* of these classes will pull heavily enough to wound the cheek upon the jagged enamel points, and thus make the operation necessary.

Filing the enamel point on the back molars is another subject. Williams claims that the wounds upon the cheeks of horses are trivial affairs that will heal without dental interference. He compares them to the accidental biting of the cheek



of the human being. In this his error is palpable. Accidental wounding of the cheek of horses by biting up the folded mucous membrane between the molars never occurs. The accident would be quite a physical impossibility. The wounds of the horse's mouth other than those caused by the bit generally occur at the level of the fifth molar, and are caused in a gradual manner by the action of the masseter muscle upon the enamel points, which are always specially prominent at this point. These wounds, sometimes trivial, are not infrequently the causes of considerable discomfort. In size and gravity they vary from mere erosions of small dimensions to large excavations the size of a silver dollar. Often the mucous membrane is so completely destroyed that considerable time elapses before its epithelium will regenerate sufficiently to re-cloth the breach. The scientific treatment of such a condition is plain. Either the cause must be removed or else the subject must be allowed only a soup diet for a few weeks to allow the wound to heal.

If we grant that tooth-filing is essential in the treatment of the buccal abrasions caused by the bit, and the more aggravated ones caused by mastication, can wholesale, universal tooth-rasping be defended in the guise of preventive treatment? Herein lies the solution of the controversy. By drawing a line between the sharp teeth that do or will at some near future time cause abrasions and those that never wound the mouth the *indication* and the *contra-indication* for the tooth-filing operation is determined. It is by drawing this line that the *ethical* dental operation is separated from the *non-ethical*. In making the decision the veterinarian, knowing that the entire removal of the enamel points diminishes the grinding capacity of the teeth, will select only the aggravated case and will sacrifice only the sharp points of the protruding enamel, and that only at points where they are capable of creating wounds. These, we believe, are the tenets of the thinking veterinarians of the day, which if true should pacify the disturbed minds of the few who foresee naught but calamity for the American veterinarian unless a great campaign of education is immediately inaugurated to stay the impending havoc of the horse dentist.

It is not denied that a great many conditions existing in horses are erroneously attributed to the teeth by the layman, and the veterinarian failing to detect the real cause, files the teeth in lieu of a rational treatment or as expectant treatment pending the development of phenomena that reveal the actual causative factor. Sometimes in some communities horses are



submitted to the veterinarian with the unqualified instruction to file the teeth without previous consultation as to its advisability, leaving the honest practitioner to choose between performing the operation or else preparing to deliver a lecture on the physiology of mastication. That is, either the teeth must be filed or the client told flatly that it is unnecessary and harmful. Leaving aside the tendency to decide in favor of performing the operation on account of the monetary gain, it is the plain duty of the veterinarian to abide by the client's wishes. It is not expected of a practitioner to attempt single handed to correct impressions held for generations. The remedy must come from the profession as a whole. "We must begin a campaign of education among ourselves," as Williams puts it, is hitting the nail on the head. The veterinarian is either a diplomat or a pauper. He must yield to the popular prejudices of his community to a certain extent and for a time at least. Since time immemorial the successful therapist has yielded to the "popular prejudice." The physician, the surgeon, the dentist and the veterinarian have yielded to it and probably always will. The accepted treatment of to-day is the "popular prejudice" of to-morrow. What we do to-day in the name of science will be the "popular prejudice" of the next generation. The scientist leads the layman. To succeed in practice the "popular prejudice" *must* be respected a great deal more than the pharmacopœia. Men who ignore it seldom live to see the good that results from their theories. A second or third generation may admire their epitaphs, but living they were laughed off the stage. The veterinarian of to-day in certain communities who would trouble to lecture the owner of a horse on the harmlessness of wolf teeth, when his antecedents, himself and his children are all positively convinced of their harmfulness, runs some risk of being called an idiot besides losing a patient and a client. These actions on the part of professional men, might better be winked or whispered instead of written, in spite of the fact that they play no small part in a practitioner's success. Of course such recommendations have their bearable limitations. There must be a distinction made between them and faking, pure and simple. In this connection, it can be truthfully mentioned that horse dentistry offers no greater opportunity for faking, for dishonest methods, for unnecessary therapeutics, than any other part of the healing art. The unscrupulous will perform any kind of unnecessary operations, knowing them to be such, while the honorable practitioner limits his unnecessary

therapeutics to harmless treatment. Is there living to-day a practitioner of wide experience who has never administered treatment, for strategical reason, that could be of no possible service to the patient? We dope, we cut, we advise in the manner to best serve our patients, our clients and ourselves, disregarding scientific principles, as seldom and as little as possible, but as surely as the welfare of all concerned demands. To claim that successful practitioners, either human or veterinary, do less, is a gross misconception of the facts, and to attempt to change this attribute of practitioners is as foolish as it is impossible until such time as all mankind has materially changed its tactics in the struggle for existence. What Prof. Williams would have us believe is debasing to science might easily be interpreted as an effort towards self-preservation. If a horse is brought to my hospital with inflamed eyes I would extract its wolf teeth. If asked as to their effects upon the eyes I would tell the truth. If a horse is submitted with instructions to extract its wolf teeth, out they come without further comment. This is but one of many similar situations met every day in a busy professional life. They might be enumerated *ad infinitum*.

We read elsewhere in Prof. Williams' oration of two veterinarians who filed and filed and filed the molars of a horse that later proved to be suffering from an inflammatory condition of a single tooth. These two tooth-rasping vets. failed to locate the real seat of irritation, true enough, and they erred in filing the molars much more than men of better judgment would have done, but in the matter of diagnosis they did no worse than many of us frequently do. Dental inflammations in their incipient stages are not so very easily discovered from the cursory examination we are generally compelled to depend upon. A veterinarian in practice is usually expected to make the dental diagnosis in the standing position by palpation and inspection, without much ceremony. The conclusions must be based upon speculation largely. It is only when the horse is cast and placed in position for operation that the exact diagnosis is made possible. It is often impossible to convince a client that a horse must be cast for no other purpose than that of making an examination of a suspected tooth. Witness the case reported by Williams himself in his article entitled "Empyema of the Facial Sinuses of the Horse" (AM. VET. REVIEW, Vol. XXX, No. 2). A four-year-old mare was presented for treatment February 6th, 1900, and the diagnosis was made

March 2, 1903. Here is a case of dental inflammation in which three years elapsed before Prof. Williams was able to make an accurate diagnosis. The mare was trephined twice previously, and each time was presumably placed in position specially appropriate for making the most careful examination of the oral cavity. Still the poor mare went on and on, until the face bulged and the decayed tooth was "split into numerous fragments." Then the appropriate treatment was given, and the mare, after three years of suffering, was promptly and permanently cured. What a pity it is that a poor animal must suffer so long before it becomes possible for the veterinarian to afford relief. Is this not a beautiful exemplification of our deficiencies? Here is a mare brought to the "*Mecca of Science Veterinary*," and was twice forced to go away disappointed with human ability to relieve pain. Why? Incompetency? No. No one would charge Prof. Williams with incompetency. His work along this very line is too well known and, yes, too well appreciated, to make good any such insinuation. It is the difficulty of making the dental diagnosis at this stage that prolonged the poor mare's suffering, and the reiteration of the history of the case here is made frankly without intent to belittle or ridicule, but for the chuckling satisfaction it must be to other poor devils who have bumped the same bumps over and over, in places where deficiencies count for much more than they do in the free clinic.

*As to bishoping.*—Bishoping is a fraud. No veterinarian should perform the operation under any circumstances. It is not professional services. It is unprofessional services. I confess to having performed the operation a number of times in years gone by, but fortunately for myself I have reformed. In those years I performed the operation at the request of men whose minds were admittedly stronger than my own. I learned to do it well, so well that many a veterinarian was deceived by my work. In writing my book "*Animal Dentistry*, etc.," I carefully considered the advisability of describing the operation, fearing the criticism it must surely arouse from some source or other. After deliberate consideration it was decided to give the operation a place on the grounds that the student or veterinarian should know the *method* as well as the *crime*, in hope that the former may assist in disclosing the latter. If the volume "presumably dedicated to scientific dentistry," has been debased, the loss is my own, but if scientific horse dentistry is the sufferer I promptly apologize for my

shortsightedness. It is very doubtful if any harm has been done, however. Our students and the members of our profession have been so many years out of the kindergarten that it is very doubtful if their set minds could be poisoned so easily. The man who would proceed to commit any given crime upon learning the method of committing it, would sooner or later have learned the method, if not in one way then in another. Bishoping for generations had been performed with very crude hand instruments, and the results obtained deceived no one who possessed the least knowledge of horses' teeth from the standpoint of determining age. The work was always so "raw" that it was always detected in advance of the other changes by which age is determined. The bishoped mouth, in fact, was not intended to deceive any one except the unsuspecting novice. Now-a-days, things have changed. Bishoping is done so well, under favorable circumstances, that no expert will detect it, unless a very careful and special examination is made. This new departure, this new danger into which we have frequently seen members of the profession fall, renders its publicity particularly defensible, even in a scientific (?) book.

Every real valuable *operation, medicine or method*, has been abused at some time after its introduction into the medical professions. The professions are prone to run riot with every new acquisition. The new remedy is always overdone for a time. So it was with tooth-filing. A valuable operation and an easy method of performing it was introduced into the veterinary profession. The manifest benefit, here and there, was heralded as an argument in favor of its universal application. To-day, in our sober senses, we are learning its real worth, its real indications, and we are engaged in teaching our new recruits this knowledge, which time alone could have evolved. The danger point has been passed. Prof. Williams should have delivered his oration on "The Ethics of Horse Dentistry" twenty years ago.

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#### A FEW SURGICAL SUGGESTIONS.

1. *In suturing* the skin always so adjust the stitches so as to bring only raw surfaces into apposition. Infolded edges will not reunite.
2. Never draw sutures too taut in tying the knots after the edges are brought together and always preserve enough skin in an operation to render apposition possible without stretching



the skin. Taut stitches are seldom effectual; the tissues caught within them becomes strangulated; a favorable field for infection is created; and they always leave an indelible blemish. In short, always avoid tension whenever possible.

3. *In removing stitches* after the edges of a wound have united cut them near the skin so that no part of the exposed portion of the thread is drawn through the stitch tract. A well healed wound is sometimes infected in this manner.

4. An English surgeon is earning the reputation of leaving no scar after his operations, by making *bevelled incisions* through the skin instead of cutting directly through it at a right angle with the surface as is usually done. The slant or bevelled incision heals without leaving any visible scar tissue at the surface of the skin. Primary union of the epithelium occurs before the underlying connective tissue blocks its prompt regeneration. In the legs of horses where the skin is thick the method has given exceptionally flattering results.

5. *In castrating horses in the standing position* always make an extra effort to place the emasculating instrument as high up as possible before crushing off the cord. The one bane of "standing castration" is the great difficulty of removing enough cord with the testicle. Some have recommended cutting of the cremaster muscle to let the testicle fall well out of the scrotum, but this is not always easily accomplished and it always prolongs the operation somewhat. There must be no delay in castrating horses in this manner. The operation to be successfully done must be promptly executed and finished before the horse has gotten into the fighting mood. The operation is always marred if there is any delay.

6. *In trephining the skull* it is not necessary to excise a piece of skin. A straight incision, dilated with retractors to admit the trephine, is sufficient and it leaves a much smaller hairless scar. The removal of a piece of skin the size of the circular trephine has been abandoned by the best practitioners.

7. *In repulsing superior molars* of old horses always make preparations to prevent a permanent channel between the alveolar cavity and the sinus. A large hole in such an osseous environment especially after the reactive forces have been greatly diminished by age, will only heal under the most favorable conditions and often will refuse to heal at all. A very satisfactory plan is to wedge a piece of gutta percha between the crowns of the two teeth bounding the vacant alveolar cavity, without forcing it into the depths of the cavity. The wedge is applied



on the second day after the operation when no blood clot will accumulate beneath it.

8. If it is divine to prevent surgical pain it is still more divine to prevent discomfort, shock or even death from the loss of blood. All surgical operations should be made as near bloodless as possible. Every possible drop of blood should be preserved to the patient. The loss of blood, especially when combined with pain, diminishes the vital forces to the minimum and thus retards healing and favors fatal or harmful infections.

9. In performing long, painful, sanguinary operations, a thermo-cautery in the hands of a third assistant is very useful to touch up the bleeding spots as they appear. Oozing places and spurting vessels can be promptly closed without interrupting the operator and thus greatly decrease the duration of the dissection.

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THE MISSOURI VALLEY VETERINARY ASSOCIATION has appointed a committee, of which Dr. Sesco Stewart is chairman, to again invite the A. V. M. A. to meet in Kansas City, in 1907.

ON account of continued illness, all the show horses of Mr. Eben D. Jordan, of Boston, are to be sold. This announcement will be received with genuine regret by all devotees of horse shows, for he stood for all that was best and loftiest in the gentleman's sport. Most, if not all, the splendid Hackneys which he exhibited were of his own breeding.

WE regret to announce the death of the wife of Dr. W. A. Thomas, late State Veterinarian of Nebraska. In the June REVIEW it was stated that after 25 years' residence in Lincoln, he would remove to Weaubleau, Mo., to engage in stock farming. It was while he was preparing to leave for his new home that Mrs. Thomas was taken ill, and after a short sickness died. The Doctor and his three daughters have the sympathy of the profession in their great bereavement.

KANSAS MULES TO ALASKA.—The Kansas mule will be used by railroad and grading contractors in Nome, Alaska. A carload of twenty-four Kansas mules left Kansas City recently for Seattle. There they will be loaded on a steamer and sent to a point near Nome, where they will be transferred to a small boat which can enter the shallow harbor at Nome. The mules were bought in Kansas and shipped by Robertson & Co.'s mule buyer at the stock yards.

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EXTRACTS FROM EXCHANGES.

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BELGIAN REVIEW.

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By Prof. A. LIAUTARD, M. D., V. M.

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VERMIFORM ANEURISMS AND CONSECUTIVE THROMBOSIS [*Zroaenepoel*].—A colt, aged 18 months, was brought to the author for treatment, presenting the following symptoms: Having walked about 8 kilometres, the animal seemed exhausted; his pulse was weak, quick and irregular, heart beating strongly and could be heard all over the chest. The visible mucosæ were pale and anæmic; respiration slow and regular—all the signs of an animal in miserable physiologic condition. There was diarrhoea, which appeared after a protracted constipation; it was liquid, yellowish and foetid. In three weeks it brought the horse to the condition of a skeleton. Tuberculinization gave negative results. A treatment of naphthaline, tincture of iodine, tannin, arsenious acid, and milk *ad libitum* was prescribed, and the animal placed under observation. After ten days it was found one morning that the colt had struggled much during the night. Standing up his body balanced upon his legs, and he had to be supported to avoid falling. Made to walk, the staggering increased, and the left diagonal biped refused to move forward; the left fore and right hind legs had to be dragged with ropes to make them advance. Returned with difficulty to his stable, the horse dropped, exhibited symptoms of violent colic, and died. At the post-mortem the lesions were found on the spleen, digestive canal and arteries. The spleen weighed ten kilogrammes; in its centre there was a sequestrum as big as a man's head; the splenic artery was obstructed in its centre. The organ was adherent to the diaphragm, stomach, small and large intestines. The stomach, atrophied, showed the lesions of chronic gastritis. The small intestines, congested and ecchymosed, had its mucous membrane thickened. The colon had a mucous membrane black, friable, and engorged with venous blood, and the cæcum was covered with numerous little tumors, lodging the larvæ of sclerostoma. The arterial lesions were immense, and all of thrombotic nature. In the great mesenteric it was old, adherent, and softened here and there. In the aorta the clot was recent. The axillary, humeral, and radial of the left fore leg, as also the

femoral and popliteal of the right hind leg were completely obliterated. The clot extended also into the renal and the hepatic arteries. The splenic is entirely closed by an old clot, partly purulent. As complications of these conditions there were: cardiac hypertrophy, stasis of the kidney, cirrhosis of the liver and pulmonary emphysema. (*Annales de Bruxelles, Jan., 1906.*)

OBSERVATIONS OF AN ENZOÖTIC OUTBREAK OF PERIODIC OPHTHALMIA IN THE HORSE [*Mr. Rigaux*].—The infectious nature of periodic ophthalmia has been demonstrated by Dr. Dor, who has found a micrococcus resembling the pyogenes staphylococcus in the exudate of the anterior chamber of a diseased eye, and his observations were confirmed by Tchoubarowsky, who also found a staphylococcus in the same condition, and succeeded in reproducing the disease experimentally. The causes of the affection, according to writers, vary: lymphatism, heredity, stables ill ventilated, dark and badly kept, age of dentition, damp or marshy ground, etc. The influence of soil seems to be a serious cause, since emigration has protected horses from the disease. The following observations may throw light on this. It occurred on a farm where some twenty horses were kept. Since fifty years no periodic ophthalmia had been there. The stables were clean, well ventilated, and white-washed twice a year. Stock kept in best condition. *Case I.*—End of January, 1904; two-year old gelding; right eye bathed with tears, conjunctiva injected, contraction of the pupil, hypopion. Left eye taken day after. Treatment by iodide of potassium. Recovery in a week. Relapse two months later in both eyes. One of them is lost. *Case II.*—March 19, with this colt, a stallion of 29 months is placed for companionship. Nine days later he has suspicious symptoms in the right eye, which was pronounced periodic ophthalmia by a professor of the Veterinary School of Brussels. The left eye is soon affected also. Both eyes were the seats of relapses. *Case III.*—Three-year-old mare; left eye diseased; cured with same treatment; relapse a month after. *Case IV.*—Thirteen-months-old colt, taken in May, has other attacks in June and July, and became blind. *Case V.*—Filly of ten months, affected in May in the left eye first and the right eye after; has relapses in July and August; blind in the end in both eyes. *Case VI.*—Mare of ten years, has an attack at the farm in May in the right eye. Sold, she has since had nothing abnormal with her eyes. *Case VII.*—Mare of eleven years, attack in right eye in June, is sold in October apparently sound. *Case VIII.*—Two-year-old colt

has never had anything at the farm; is sold at a fair in February, 1905, and a few days after reaching his new owner has periodic ophthalmia. *Obscure Cases*.—From time to time lachrymation and contraction of the pupil have been observed among the horses of the farm. For the author the outbreak was evidently one of periodic ophthalmia, in which the influence of contagion cannot be denied.—(*Annales de Belgique*, Jan., 1906.)

FATAL HÆMORRHAGE FROM GENITALS IN A SOW—PECULIAR ABNORMALITY OF THE PAVILION [*Mr. Gueldu*].—Outside of those that occur before or after delivery, those kind of hæmorrhages are not frequent. They are more commonly observed in cows and in dogs, where their uterine organ is easily detected in the discovery of myomas or fibromyomas of that cavity. There are, however, cases where their origin is situated more deeply, as the present case indicates. A sow had well delivered in October last, and the author was called to see her on Jan 3. He found her lying, indifferent to what was going on around her, the skin slightly cyanotic. She refuses all food, has had no passage for some time; her rectal temperature is normal. Constipation is suspected, and purgative ordered. Three days later she seems better; appetite is improving, but has passed a large quantity of blood by the vulva. Her temperature is low, the ears drooping; mucous membranes and skin are very pale. Hæmorrhages returned and the sow died. Post-mortem: Carcass almost bloodless. Liver and hepatic glands full of tubercles. Genital apparatus free from disease, except on one of the ovaries, where there is a tumor as big as a large egg, smooth and shining on its surface. It is red in color. It is attached to the fallopian canal, which dips into it with the broad ligament through an elliptical orifice. The borders of this are hard and look natural. The tumor is formed of clotted blood, arranged in concentric layers, and surround the ovary, which is apparently sound. Evidently the hæmorrhage came from the ovary.—(*Annales de Belgique*, Feb., 1906.)

FRACTURE OF THE RADIUS AND CUBITUS IN A PREGNANT HEIFER [*F. Hermans*].—Fractures are not any more rare in cattle than in horses and if their treatment is not recommended it is more to the point of view of general economy. The following case shows that very good results are sometimes obtained. This heifer was eight months pregnant. She has superior milking qualities. One morning she is found resting on three legs, the left fore leg unable to carry its share of the



weight of the body. There is a large swelling on the left forearm, involving the elbow joint, and less marked on the inside of the leg. The animal is in great pain. On manipulating the leg crepitation is manifest; there is a transversal fracture of both bones of the forearm on a level with the radio-cubital arch. Cold water compresses were applied for a few days to obtain a reduction in the swelling, and then a permanent adhesive bandage with plaster of Paris strips was applied. The general condition improved immediately. The appetite returned, and the local pain having subsided the animal stood up now and then, with her injured leg slightly flexed and her toes gently touching the ground. She calved three weeks after the accident at term. The dressing was left on for fifty days. There remained a very long callus on the posterior face of the forearm, which was the cause of a little knuckling at the fetlock. With time, however, the callus was resorbed, and after four months the animal walked perfectly straight on all of her legs.—(*Annales de Bruxelles, March, 1906.*)

#### GERMAN REVIEW.

By J. P. O'LEARY, M. D. V., Bureau of Animal Industry, Buffalo, N. Y.

PLACENTOPHAGIA [*T. Wieland*].—There appeared a short time ago in the *Berliner Tierärztliche Wochenschrift*, an article concerning the eating of the placenta. W. quotes Dr. Quinet's views on this subject (*Chasse et Pêche, 21 Année, No. 43*) translated into German. The Belgian author says: "It has been said that rabbits and guinea-pigs have revolting habits and cannibalistic tendencies and that they conceal a bad character, perverse instinct, and so on, under this seemingly good nature." He says that the males of the young rabbits fight and pester the little females shortly after they are born; however, these are slight offenses common to all animals which must fight for their existence and try to break the monotony because they obey their instinct. However, rabbits and guinea-pigs have been charged with killing their offspring and even of eating them. We have long believed, with an appearance of justification, that even in the human family, the wretched and debauched are induced to acts of murder and infanticide, but that is a false interpretation of a natural phenomenon which is not peculiar to this species. Animals kill their young against their will. They are instinctively compelled to eat their placenta only, and all



mammalian females eat their own placental membranes. This is a dominant physiological necessity, as we will see. The newly born yet enveloped in the placenta lying motionless within it and completely saturated by special nutritive juices, it is no wonder that they slight these poor animals having no midwife nor obstetrician to instruct them, they eat up everything heedlessly. But as soon as they feel that the newly born move or are alive, they are no longer deceived; they show on the contrary the greatest concern for their offspring. And this eager desire, this necessity to devour their placenta is peculiar to all mammalian females, carnivora as well as herbivora, and it is even common among tribes of people in Asia, Africa, and Oceanica, who are even at the present day placentophagists. Since the labors of Brown-Sequard we have studied and tested the potency of the organic juice and we have long recognized that the placental juices have great effect upon the health of the parturient and upon certain functions which stand in relation to it—for example, lactation. However, the influence of the placenta upon the organization of lactation is dependent upon other symptoms of pregnancy, which I shall try to summarize briefly for amateur breeders and others. The thyroid gland secretes iodine, arsenic and phosphoric bases, which play an important part in the formation of the skin and its appendages, hide, feathers, brain, genital organs, and the embryo. The excess of these substances is excreted in the form of menstruation in those females which have little hair upon the skin, and as long as there is no foetus to consume them. The monthly catanemia in the human species is only a means of emptying the thyroid secretions, which are abundantly discharged during the menstrual period, in the unimpregnated uterus. Men are not subjected to it, because their hair system is a sufficient drainage for the products of the thyroid glands, which after puberty is constantly growing and renewing itself. The females of animals which are well clothed with hair, at the time of heat do not suffer any loss of blood, while those animals which have little hair, menstruate. We have noticed for a long time, that in the case of certain animals, a very close relation exists between the activity of the organs of reproduction at the time of heat, and the evolution of certain parts of the body which undergo changes periodically, as the antlers of the deer, the hoods of fowls, the nuptial feathers with which certain birds are adorned at the mating season. Moreover he has given an explanation of this strange phenomenon of the relation be-

tween apparently so remote and to a certain extent strange organs, in which he says, that a special epithelium plays the principal rôle in the foetal evolution of the ovaries and testicles and that the feathers and hair are of a simple epithelial nature. To-day these anatomical analogies are strengthened by the functions of the thyroid glands; so that we can state with certainty, that each moult, in the case of animals covered with hair or feathers, is only a means of drainage for the secretions of the thyroid gland, which are eliminated in excessive quantities at the time of menstruation. Every moult, every new production of hair or feathers, stops as soon as the reproductive organs and their accessories, that is the mammary glands, begin their functions. Now additional organic juices flow together into the placenta and accumulate there for the development of a new being. Everything that the female body can produce, it stores up in the placenta. Fortunately at the moment of delivery the contractions of the uterus press the placenta slowly together, to some extent to facilitate the absorption of a part of this stored up supply, which later would be useless. In any case a great portion is wasted at the time of delivery, which is a great loss to the body. This natural instinct becomes a benefit. It impels the mother to make use of this valuable source of nutrition, which is created from her own body, even if she belongs to a species to which flesh foods are usually abhorrent. Since it has an especial value for her at this moment; it creates a strong desire to eat and digest the afterbirth. Every female which can eat all or a part of her placenta, recovers more quickly from her confinement and the milk secretion makes its appearance more rapidly and more plentifully. And it is especially true and striking in the case of rabbits and guinea-pigs. We take pains to prevent these animals from eating their afterbirth, and when we do, their offspring never attain full growth; the flow of milk makes its appearance late and scantily; the physiological formation of milk does not take place, and their young ones perish.—(*Berliner Tierärztliche Wochenschrift*.)

BEEF MEASLES IN MILK AND SUCKING CALVES [*Dr. Stroh in Augsburg*].—The author gives a preliminary résumé of the literature on this subject, to which he appends a description of the cases observed by himself. The author likewise reviews the various notes compiled, regarding the discovery of measles in calves, according to the age of the host and in relation to the anatomical conditions of the parasitic nodules. With regard to the latter, it is particularly interesting that the

measles are already found in a caseous condition; but upon more careful examination of the cheesy detritus enclosed in the measles sac, in spite of the youth of the parasites he was able to discover complete and intact cystocerci. This caseous detritus is not to be considered as a degenerated mass of measles themselves, but as the remains of an accompanying exudation process which later disappeared through absorption. With regard to the probable infection of the calves, Stroh excludes an intrauterine infection as a cause, but rather, that an early feeding of green food and straw as well as the transmission through the manure covered hands of tapeworm infected attendants. It is well known that those persons who teach the calves to suck furnish prolific sources for infection. The notably large numbers of measly sucking calves found by Stroh himself, he attributes to the thorough inspection and particularly to the close examination of the hearts of these animals. The author compiles the results of his interesting investigations as follows: (1) Spontaneous cattle measles discovered in sucking calves are less rare than was supposed. The measly formations appear, as a rule, as hard, lengthy and various sized nodules which usually enclose similar variously large developed cystocerci, which are completely intact, sometimes with a slight bloody serous fluid, and at other times of a more or less rich, yellow, green or brownish colored and frequently with bloody crowded detritus mass and further is surrounded with a very strong enveloping membrane. (2) In older spontaneously infected so-called milch calves, we frequently meet with measles originating usually in the customary form in the first period of life, as bladder-like formations with more or less thinned capsules and correspondingly transparent head-hooks. (3) The changes which take place in the measly formations in the course of several weeks, may happen as shown under paragraph 1, and under paragraph 2. (4) That with the observations in our cases and in those of Messner and others there occurs a special intense local tissue reaction, which must be regarded as a consequence of the delicate and slight irresistible power of the tissues in sucking calves. The physical condition of the animal is in no way impaired. (5) That the highly infected heart was regularly the primary seat of invasion in sucking calves. (6) The intrauterine infection of calves with tapeworm eggs, is not probable, and would account for an exceptionally small number of cases.—(*Zeitschr. für Fleisch und Milchhyg.*, XVI Jahrg., S. 8 und 40.

## THE NEW MEAT INSPECTION LAW.

For the purpose of preventing the use in interstate or foreign commerce, as hereinafter provided, of meat and meat food products which are unsound, unhealthful, unwholesome, or otherwise unfit for human food, the Secretary of Agriculture, at his discretion, may cause to be made, by inspectors appointed for that purpose, an examination and inspection of all cattle, sheep, swine, and goats before they shall be allowed to enter into any slaughtering, packing, meat-canning, rendering, or similar establishment, in which they are to be slaughtered and the meat and meat food products thereof are to be used in interstate or foreign commerce; and all cattle, swine, sheep, and goats found on such inspection to show symptoms of disease shall be set apart and slaughtered separately from all other cattle, sheep, swine, or goats, and when so slaughtered the carcasses of said cattle, sheep, swine, or goats shall be subject to a careful examination and inspection, all as provided by the rules and regulations to be prescribed by the Secretary of Agriculture as herein provided for.

### POST-MORTEM INSPECTIONS.

That for the purposes hereinbefore set forth the Secretary of Agriculture shall cause to be made by inspectors appointed for that purpose, as hereinafter provided, a post-mortem examination and inspection of the carcasses and parts thereof of all cattle, sheep, swine, and goats to be prepared for human consumption at any slaughtering, meat-canning, salting, packing, rendering, or similar establishment in any State, Territory, or the District of Columbia for transportation or sale as articles of interstate or foreign commerce; and the carcasses and parts thereof of all such animals found to be sound, healthful, wholesome, and fit for human food shall be marked, stamped, tagged or labeled as "Inspected and passed; and said inspectors shall label, mark, stamp, or tag as "Inspected and condemned," all carcasses and parts thereof of animals found to be unsound, unhealthful, unwholesome, or otherwise unfit for human food; and all carcasses and parts thereof thus inspected and condemned shall be destroyed for food purposes by the said establishment in the presence of an inspector, and the Secretary of Agriculture may remove inspectors from any such establishment which fails to so destroy any such condemned carcass or part thereof. And said inspectors, after said first inspection shall, when they deem



it necessary, reinspect said carcasses or parts thereof to determine whether since the first inspection the same have become unsound, unhealthful, unwholesome, or in any way unfit for human food, and if any carcass or any part thereof shall, upon examination and inspection subsequent to the first examination and inspection, be found to be unsound, unhealthful, unwholesome, or otherwise unfit for human food, it shall be destroyed for food purposes by the said establishment in the presence of an inspector, and the Secretary of Agriculture may remove inspectors from any establishment which fails to so destroy any such condemned carcass or part thereof.

The foregoing provisions shall apply to all carcasses or parts of carcasses of cattle, sheep, swine, and goats, or the meat or meat products thereof which may be brought into any slaughtering, meat-canning, salting, packing, rendering, or similar establishment, and such examination and inspection shall be had before the said carcasses or parts thereof shall be allowed to enter into any department wherein the same are to be treated and prepared for meat food products; and the foregoing provisions shall also apply to all such products which, after having been issued from any slaughtering, meat-canning, salting, packing, rendering, or similar establishment, shall be returned to the same or to any similar establishment where such inspection is maintained.

#### INSPECTION OF FOOD PRODUCTS.

That for the purposes hereinbefore set forth the Secretary of Agriculture shall cause to be made by inspectors appointed for that purpose an examination and inspection of all meat food products prepared for interstate or foreign commerce in any slaughtering, meat-canning, salting, packing, rendering, or similar establishment, and for the purposes of any examination and inspection said inspectors shall have access at all times, by day or night, whether the establishment be operated or not, to every part of said establishment; and said inspectors shall mark, stamp, tag, or label as "Inspected and passed" all such products found to be sound, healthful, and wholesome, and which contain no dyes, chemicals, preservatives, or ingredients which render such meat or meat food products unsound, unhealthful, unwholesome, or unfit for human food; and said inspectors shall label, mark, stamp, or tag as "Inspected and condemned" all such products found unsound, unhealthful, and unwholesome, or which contain dyes, chemicals, preservatives,



or ingredients which render such meat or meat food products unsound, unhealthful, unwholesome, or unfit for human food, and all such condemned meat food products shall be destroyed for food purposes, as hereinbefore provided, and the Secretary of Agriculture may remove inspectors from any establishment which fails to so destroy such condemned meat food products: Provided, That, subject to the rules and regulations of the Secretary of Agriculture, the provisions hereof in regard to preservatives shall not apply to meat food products for export to any foreign country and which are prepared or packed according to the specifications or directions of the foreign purchaser, when no substance is used in the preparation or packing thereof in conflict with the laws of the foreign country to which said article is to be exported; but if said article shall be in fact sold or offered for sale for domestic use or consumption then this proviso shall not exempt said article from the operation of all the other provisions of this Act.

#### LABELLING OF FOOD PRODUCTS.

That when any meat or meat food product prepared for interstate or foreign commerce which has been inspected as hereinbefore provided and marked "Inspected and passed" shall be placed or packed in any can, pot, tin, canvas, or other receptacle or covering in any establishment where inspection under the provisions of this Act is maintained, the person, firm, or corporation preparing said product shall cause a label to be attached to said can, pot, tin, canvas, or other receptacle or covering, under the supervision of an inspector, which label shall state that the contents thereof have been "inspected and passed" under the provisions of this Act; and no inspection and examination of meat or meat food products deposited or inclosed in cans, tins, pots, canvas, or other receptacle or covering in any establishment where inspection under the provisions of this Act is maintained shall be deemed to be complete until such meat or meat food products have been sealed or inclosed in said can, tin, pot, canvas, or other receptacle or covering under the supervision of an inspector, and no such meat or meat food products shall be sold or offered for sale by any person, firm, or corporation in interstate or foreign commerce under any false or deceptive name; but established trade name or names which are usual to such products and which are not false and deceptive and which shall be approved by the Secretary of Agriculture are permitted.

## INSPECTION OF SANITARY CONDITIONS.

The Secretary of Agriculture shall cause to be made, by experts in sanitation or by other competent inspectors, such inspection of all slaughtering, meat canning, salting, packing, rendering, or similar establishments in which cattle, sheep, swine, and goats are slaughtered and the meat and meat food products thereof are prepared for interstate or foreign commerce as may be necessary to inform himself concerning the sanitary conditions of the same, and to prescribe the rules and regulations of sanitation under which such establishments shall be maintained; and where the sanitary conditions of any such establishment are such that the meat or meat food products are rendered unclean, unsound, unhealthful, unwholesome, or otherwise unfit for human food, he shall refuse to allow said meat or meat food products to be labeled, marked, stamped, or tagged as "inspected and passed."

## NIGHT INSPECTION.

That the Secretary of Agriculture shall cause an examination and inspection of all cattle, sheep, swine, and goats, and the food products thereof, slaughtered and prepared in the establishments hereinbefore described for the purposes of interstate or foreign commerce to be made during the nighttime as well as during the daytime when the slaughtering of said cattle, sheep, swine, and goats, or the preparation of said food products is conducted during the nighttime.

## TRANSPORTATION OF UNINSPECTED PRODUCTS PROHIBITED.

That on and after October first, nineteen hundred and six, no person, firm, or corporation shall transport or offer for transportation, and no carrier of interstate or foreign commerce shall transport or receive for transportation from one State or Territory or the District of Columbia to any other State or Territory or the District of Columbia, or to any place under the jurisdiction of the United States, or to any foreign country, any carcasses or parts thereof, meat, or meat food products thereof which have not been inspected, examined, and marked as "inspected and passed," in accordance with the terms of this Act and with the rules and regulations prescribed by the Secretary of Agriculture: Provided, That all meat and meat food products on hand on October first, nineteen hundred and six, at establishments where inspection has not been maintained, or which have been inspected under existing law, shall be examined and labeled under such rules and regulations as the Secre-

tary of Agriculture shall prescribe, and then shall be allowed to be sold in interstate or foreign commerce.

#### COUNTERFEITING OF LABELS PROHIBITED.

That no person, firm, or corporation, or officer, agent, or employee thereof, shall forge, counterfeit, simulate, or falsely represent, or shall without proper authority use, fail to use, or detach, or shall knowingly or wrongfully alter, deface, or destroy, or fail to deface or destroy, any of the marks, stamps, tags, labels, or other identification devices provided for in this Act, or in and as directed by the rules and regulations prescribed hereunder by the Secretary of Agriculture, on any carcasses, parts of carcasses, or the food product, or containers thereof, subject to the provisions of this Act, or any certificate in relation thereto, authorized or required by this Act or by the said rules and regulations of the Secretary of Agriculture.

#### INSPECTION OF ANIMALS AND CARCASSES INTENDED FOR EXPORT.

That the Secretary of Agriculture shall cause to be made a careful inspection of all cattle, sheep, swine, and goats intended and offered for export to foreign countries at such times and places, and in such manner as he may deem proper, to ascertain whether such cattle, sheep, swine, and goats are free from disease.

And for this purpose he may appoint inspectors who shall be authorized to give an official certificate clearly stating the condition in which such cattle, sheep, swine and goats are found.

And no clearance shall be given to any vessel having on board cattle, sheep, swine, or goats for export to a foreign country until the owner or shipper of such cattle, sheep, swine, or goats has a certificate from the inspector herein authorized to be appointed, stating that the said cattle, sheep, swine, or goats are sound and healthy, or unless the Secretary of Agriculture shall have waived the requirement of such certificate for export to the particular country to which such cattle, sheep, swine, or goats are to be exported.

That the Secretary of Agriculture shall also cause to be made a careful inspection of the carcasses and parts thereof of all cattle, sheep, swine, and goats, the meat of which, fresh, salted, canned, corned, packed, cured, or otherwise prepared, is intended and offered for export to any foreign country, at such times and places and in such manner as he may deem proper.

And for this purpose he may appoint inspectors who shall

be authorized to give an official certificate stating the condition in which said cattle, sheep, swine, or goats, and the meat thereof, are found.

And no clearance shall be given to any vessel having on board any fresh, salted, canned, corned, or packed beef, mutton, pork, or goat meat, being the meat of animals killed after the passage of this Act, or except as hereinbefore provided for export to and sale in a foreign country from any port in the United States, until the owner or shipper thereof shall obtain from an inspector appointed under the provisions of this Act a certificate that the said cattle, sheep, swine, and goats were sound and healthy at the time of inspection, and that their meat is sound and wholesome, unless the Secretary of Agriculture shall have waived the requirements of such certificate for the country to which said cattle, sheep, swine, and goats or meats are to be exported.

That the inspectors provided for herein shall be authorized to give official certificates of the sound and wholesome condition of the cattle, sheep, swine, and goats, their carcasses and products as herein described, and one copy of every certificate granted under the provisions of this Act shall be filed in the Department of Agriculture, another copy shall be delivered to the owner or shipper, and when the cattle, sheep, swine, and goats or their carcasses and products are sent abroad, a third copy shall be delivered to the chief officer of the vessel of which the shipment shall be made.

#### PENALTY FOR VIOLATIONS OF LAW.

That no person, firm, or corporation engaged in the interstate commerce of meat or meat food products shall transport or offer for transportation, sell or offer to sell any such meat or meat food products in any State or Territory or in the District of Columbia or any place under the jurisdiction of the United States, other than in the State or Territory or in the District of Columbia or any place under the jurisdiction of the United States in which the slaughtering, packing, canning, rendering, or other similar establishment owned, leased, operated by said firm, person, or corporation is located unless and until said person, firm, or corporation shall have complied with all of the provisions of this Act.

That any person, firm, or corporation, or any officer or agent of any such person, firm, or corporation, who shall violate any of the provisions of this Act shall be deemed guilty of



a misdemeanor and shall be punished on conviction thereof by a fine of not exceeding ten thousand dollars or imprisonment for a period not more than two years, or by both such fine and imprisonment in the discretion of the court.

#### APPOINTMENT AND DUTIES OF INSPECTORS.

That the Secretary of Agriculture shall appoint from time to time inspectors to make examination and inspection of all cattle, sheep, swine, and goats, the inspection of which is hereby provided for, and of all carcasses and parts thereof, and of all meats and meat food products thereof, and of the sanitary conditions of all establishments in which such meat and meat food products hereinbefore described are prepared; and said inspectors shall refuse to stamp, mark, tag, or label any carcass or any part thereof, or meat food product therefrom, prepared in any establishment hereinbefore mentioned, until the same shall have actually been inspected and found to be sound, healthful, wholesome, and fit for human food, and to contain no dyes, chemicals, preservatives, or ingredients which render such meat food product unsound, unhealthful, unwholesome, or unfit for human food; and to have been prepared under proper sanitary conditions, hereinbefore provided for; and shall perform such other duties as are provided by this Act and by the rules and regulations to be prescribed by said Secretary of Agriculture; and said Secretary of Agriculture shall, from time to time, make such rules and regulations as are necessary for the efficient execution of the provisions of this Act, and all inspections and examinations made under this Act shall be such and made in such manner as described in the rules and regulations prescribed by said Secretary of Agriculture not inconsistent with the provisions of this Act.

#### BRIBERY OF INSPECTORS A FELONY.

That any person, firm, or corporation, or any agent or employé of any person, firm, or corporation who shall give, pay, or offer, directly or indirectly, to any inspector, deputy inspector, chief inspector, or any other officer or employé of the United States authorized to perform any of the duties prescribed by this Act or by the rules and regulations of the Secretary of Agriculture any money or other thing of value, with intent to influence said inspector, deputy inspector, chief inspector, or other officer or employé of the United States in the discharge of any duty herein provided for, shall be deemed guilty of a felony and, upon conviction thereof, shall be pun-

ished by a fine not less than five thousand dollars nor more than ten thousand dollars and by imprisonment not less than one year nor more than three years; and any inspector, deputy inspector, chief inspector, or other officer or employé of the United States authorized to perform any of the duties prescribed by this Act who shall accept any money, gift, or other thing of value from any person, firm, or corporation, or officers, agents, or employés thereof, given with intent to influence his official action, or who shall receive or accept from any person, firm, or corporation engaged in interstate or foreign commerce any gift, money, or other thing of value given with any purpose or intent whatsoever, shall be deemed guilty of a felony and shall, upon conviction thereof, be summarily discharged from office and shall be punished by a fine not less than one thousand dollars nor more than ten thousand dollars and by imprisonment not less than one year nor more than three years.

INSPECTION DOES NOT APPLY TO FARMERS AND RETAIL BUTCHERS.

That the provisions of this Act requiring inspection to be made by the Secretary of Agriculture shall not apply to animals slaughtered by any farmer on the farm and sold and transported as interstate or foreign commerce, nor to retail butchers and retail dealers in meat and meat food products, supplying their customers: Provided, That if any person shall sell or offer for sale or transportation for interstate or foreign commerce any meat or meat food products which are diseased, unsound, unhealthful, unwholesome, or otherwise unfit for human food, knowing that such meat food products are intended for human consumption, he shall be guilty of a misdemeanor, and on conviction thereof shall be punished by a fine not exceeding one thousand dollars or by imprisonment for a period of not exceeding one year, or by both such fine and imprisonment: Provided also, That the Secretary of Agriculture is authorized to maintain the inspection in this Act provided for at any slaughtering, meat-canning, salting, packing, rendering, or similar establishment notwithstanding this exception, and that the persons operating the same may be retail butchers and retail dealers or farmers; and where the Secretary of Agriculture shall establish such inspection then the provisions of this Act shall apply notwithstanding this exception.

\$3,000,000 APPROPRIATED FOR INSPECTION.

That there is permanently appropriated, out of any money in the Treasury not otherwise appropriated, the sum of three

million dollars, for the expenses of the inspection of cattle, sheep, swine, and goats and the meat and meat food products thereof which enter into interstate or foreign commerce and for all expenses necessary to carry into effect the provisions of this Act relating to meat inspection, including rent and the employment of labor in Washington and elsewhere, for each year. And the Secretary of Agriculture shall, in his annual estimates made to Congress, submit a statement in detail, showing the number of persons employed in such inspections and the salary or per diem paid to each, together with the contingent expenses of such inspectors and where they have been and are employed.

DR. C. J. MORROW, of Shelby, Ohio, has again entered the meat inspection service and reported for duty at So. St. Joseph in June.

DRS. PLUMMER and TEMPANY, of the U. S. Artillery post at Fort Riley, Kansas, attended the Missouri Valley meeting at Omaha.

DR. WILLIAM SWAN, of New York, has moved his office to the American Horse Exchange, Dr. Ryder having transferred his office to Twenty-fourth Street.

DR. E. A. A. GRANGE interested the members of the Veterinary Medical Association of New York County very much at the June meeting with his paper on "Motor Stimulants in Horses." He has conducted a number of experiments with the most popular formulæ for this purpose, and the details of their actions were very interesting.

THE CIVIL SERVICE EXAMINATION for meat inspectors held in April did not yield enough eligibles to meet the demand for the public service, hence a special examination was held on June 25th. If sufficient inspectors could not be secured under normal conditions, where will the supply come from for the much larger number now needed?

THE LAST ROUNDUP OF WILD HORSES.—*Wilson Creek, Wash., May 4.*—The last big roundup of horses in Eastern Washington has been in operation the past ten days, and about 3,000 of the wild equines have been brought into the corrals. The country ridden thus far has mostly been broken and mountainous. Shipping will begin about May 14. While a roundup is always an exciting incident, there has been little of accident or much out of the ordinary, considering the large number of riders engaged.

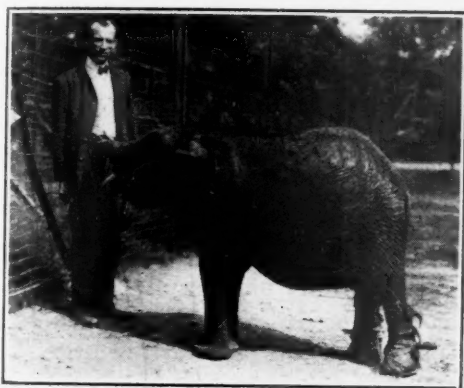
## CORRESPONDENCE.

NEWSPAPER VS. SCIENTIFIC RECORDS—THE CASE OF OOM PAUL  
(EVEN HIS NAME WRONG.)

NEW YORK ZOÖLOGICAL PARK, NEW YORK, June 30, 1906.

*Editors American Veterinary Review:*

DEAR SIRs:—Your letter enclosing clipping from the newspaper relative to the Lorenz operation on our small elephant has just reached me. You will always be safe in placing



but little confidence in the many sensational stories about the Medical Department at the Park. I used to feel called upon to deny many of the "wonderful" operations performed by me (in the newspapers), but most of them are so utterly ridiculous that I have paid little attention to them of late.

I am very glad you did not reproduce the clipping in the REVIEW, as it is a badly exaggerated version of a very simple incident. This story with numerous variations (according to the fertility of the reporter's brain) has been published and republished all over the country, as well as in some of the papers in Europe (clippings having reached us from Paris newspapers).

The facts of the case are these: Several months ago our young African elephant developed very weak ankles behind, and they got so bad that I found it necessary to provide some artificial support for them. The Crown Surgical Co. made two stiff braces reinforced by iron and with adjustable straps so that the position of the ankles might be altered gradually. Besides the braces for the ankles, calcium phosphates in milk is being given daily, with the result that the little fellow has greatly improved during the past two months, and I have every reason to believe that the treatment will be entirely successful.

I intend keeping the braces on the ankles for perhaps a year longer. They have been taken off several times lately and I find the ankles practically straight, but do not think it advis-



able to leave them off for some time yet. The elephant was captured very young, which probably accounts for the weakness.

You will see by these few notes that the story is not very startling. I enclose photograph of the braces on the young elephant, whose name, by the way, is "Congo," not "Oom Paul."

He did not fall out of the feed trough. The braces do not weigh anywhere near 40 pounds. He was not knock-kneed in the hind legs. Paralysis was not apparent to me. While a close observer of animal nature, I have not been able to detect any unusual demonstration of Congo's love for his benefactor.

Sincerely yours, W. REID BLAIR.

LEGAL TEST OF A VETERINARY CORRESPONDENCE SCHOOL'S  
STANDING—AN INTERESTING CASE FROM  
THE NATIONAL CAPITAL.

WASHINGTON, D. C., June 21, 1906.

*Editors American Veterinary Review:*

DEAR SIRs:—Here in the District of Columbia we have no law regulating the practice of veterinary medicine and surgery, and consequently any one desiring to do so can announce himself to the public as a veterinarian.

During March a colored man by the name of Kennedy brought a horse to our office affected with fistulous withers, stating that he had had the horse treated by one Dr. John W. Price, also colored, who claimed to be a qualified veterinarian.

Kennedy informed us that he had made an agreement with Dr. Price to the effect that he (Price) was to cure the horse or receive no compensation. The fee was to have been \$8.00. Kennedy informed us that the horse had been operated on by Price, he using a razor to make the incision.

There was a long cicatrix, perhaps six inches in length. The fistula was not cured, as it was discharging profusely.

Dr. Price, however, claimed that the horse was cured, and had entered suit against Kennedy for the recovery of eighteen dollars, for professional services rendered.

Kennedy failed to have proper testimony present when the case was called, and Price obtained judgment for the sum of eight dollars and costs.

Kennedy failed to pay the judgment, and on Saturday, April 21st, the horse was seized by a deputy marshall and placed in the hands of Price to feed and keep clean only.

On the following day Price, upon his own responsibility,

placed a seton in the animal. Kennedy, in the meantime, had satisfied the judgment and arrived at Price's place just as Price was finishing the operation. Kennedy immediately took the horse and showed him to the deputy marshal, and from there brought him to our hospital.

We made an exploratory examination and found that the seton did not follow the fistulous tracts, but ran through healthy muscular tissue only.

As Price had given a bond to the deputy marshal, for the safe-keeping of the animal, Kennedy immediately brought suit for damages.

We had, in the meantime, learned that Price was a supposed graduate of the Ontario Veterinary Science Association, also of the Detroit Dental College, another correspondence institution.

The evidence produced at the hearing of the case was sufficient to convince the judge that Price was an imposter and he quickly awarded Kennedy damages to the amount of \$25, Price appealing.

Mr. Morris, an agent of the Humane Society, was present, and thought there was sufficient cause to arrest Price for cruelty to animals. This was done, and at the trial Price produced the so-called diploma of the Ontario Veterinary Science Association, swore on the stand that he had attended the above named place *in person*, had made dissections, attended clinics, etc., and had received his degree as regularly and legally as any veterinarian.

Our Dr. Dunn's testimony was to the effect that the above named place was, to the best of his knowledge, not a regularly organized veterinary college, but merely a correspondence school, and that Dr. Price was not, as he claimed, a qualified veterinarian.

There being no other veterinarians present to corroborate Dr. Dunn's testimony, the Judge gave Price the benefit of the doubt and dismissed the case.

A few days later Dr. Dunn and Mr. Morris (the P. C. A. Society Officer) received a letter from a firm of colored attorneys to the effect that they had been instructed by Price to enter suit for damages amounting to \$5000 for libeling and slandering him in his profession as a veterinary surgeon.

The attorneys, however, were liberal enough to inform us that the matter could be settled without suit, if we felt so inclined. I wish to state, however, that we are not so inclined.

We are firm in our belief that Price has committed a per-

jury when he swore under oath that he had attended the aforementioned college in person, and, with the aid of the REVIEW and its readers, we think that it would be an easy matter to produce evidence that will bear out our opinion, namely: That the Ontario Veterinary Science Association, of London, Ont., and Dr. John Price, graduate of said college, are both frauds and impostors.

It seems to us a shame that an impostor of the above-mentioned type should be allowed to swindle the unsuspecting public, especially in the Capital of the United States.

We would state, however, that there is a bill pending now which will regulate veterinary practice in the District of Columbia. Yours respectfully, GRENFELL & DUNN.

VETERINARY PROGRESS.

COVINGTON, KENTUCKY, July 9, 1906.

*Editors American Veterinary Review:*

DEAR SIRs:—It is a good thing that all of us do not have the same opinion, because if we did, we all would love the same girl, and then——

Dr. Reynolds' contribution in the July number of the REVIEW contains among others two or three points which might be considered overenthusiastic. It is not my desire to belittle any of the many efforts, literary or otherwise, which the Minnesota veterinarian has made, but in his recent paper on page 434 he very plainly states that division of the motor branch from the 11th cranial nerve to the sterno-maxillaris muscle, etc., prevents a horse from cribbing and cures the habit. All of us who operate frequently know that the results obtained from such surgical interference are negative in the long run.

If the REVIEW was only read by experienced men, who are able to differentiate between right and wrong of what is given them in print, statements like the above would matter but little, but it so happens that young professionals read and accept them as facts, to be disappointed later on. For that reason the author of any paper cannot be too cautious before exhibiting his mental merchandise.

On page 435 one reads "Heaves is easily preventable." The term "heaves" covers a multitude of sins, and it is to be admitted that some of the diseases which—from a scientific point of view—constitute "heaves" are preventable, but to state that "heaves" is easily preventable is an overenthusiastic statement.

W. E. A. WYMAN.

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## ARMY VETERINARY DEPARTMENT.

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### ARMY NOTES.

**EXAMINATIONS FOR ARMY VETERINARIANS.**—An examination for candidates to the Army service, with a view of selecting qualified veterinarians to fill existing vacancies, was scheduled to be held at Fort Riley during May. No veterinarians appeared before the examining board.

**AN ELECTRIC HEATER** has supplanted the kerosene and alcohol lamp for small water-bath or like purpose, at the Fort Riley Veterinary Hospital.

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**THE** rank of the Legion of Honor has been conferred personally by the President of France upon James McLaughlin, of the horse importing firm of McLaughlin Bros., Columbus, Ohio. Mr. McLaughlin lives chiefly in France. The title implies that its possessor has been of great service to mankind.

**A RESOLUTION** was adopted by the Missouri Valley Veterinary Association at its meeting held in Omaha, Nebraska, inviting the A. V. M. A. to hold its meeting for 1907 in Kansas City, Mo., and appointed a committee of three to present the invitation at the meeting to be held in New Haven, Conn.

**DR. W. L. WILLIAMS** visited Brooklyn in July and performed his operation for roaring on several subjects. His method is considerably different from any previously described, and he has had a sufficient number of favorable results to recommend it. He will describe the technic at the New Haven meeting of the A. V. M. A.

**MAY HIS SHADOW NEVER GROW LESS.**—"Honolulu Bill" Monsarrat is going to attend the American Veterinary Medical Association's annual convention in New Haven; coincidentally he will root for Hawaii. The genial doctor's promotion work, however, may be punctuated with enquiries as to whether all bills in Honolulu are as big as he.—(*Honolulu Advertiser*, June 24.)

**A COMPLETE CHANGE** will occur in the *personnel* of the official veterinarians at the next exhibition of the Horse Show Association of America, Drs. Sheppard, Sherwood and Ryder (who have held office for a number of years) retiring. It is rumored that Dr. E. A. A. Grange and Dr. H. D. Gill will be chosen in their stead, while the third member of the staff has not yet been selected.



## SOCIETY MEETINGS.

AMERICAN VETERINARY MEDICAL ASSOCIATION.  
FORTY-THIRD ANNUAL MEETING, AUGUST 21 TO 24, 1906,  
AT NEW HAVEN, CONN.

PHILADELPHIA, PA., July 18, 1906.

*Editors American Veterinary Review :*

DEAR SIRs:—I take pleasure in submitting the following program for the Forty-third Annual Meeting of the American Veterinary Medical Association to be held in New Haven, Connecticut, August 21-24, 1906:

*Headquarters.*—The headquarters of the Association will be at the Tontine Hotel, 149 Church Street. This hotel is operated upon the European plan, rates \$1.50 to \$2.00 per day. An excellent café is attached.

There are good restaurants in the immediate vicinity.

Hotel Garde, 42 Meadow Street. American plan, with bath \$3.00; without bath \$2.50.

Hotel Davenport, corner Court and Orange Streets. American plan \$2.50.

New Haven House, 996 Chapel Street. American plan \$4.00 to \$5.00 per day.

The Local Committee has a list of other hotels and boarding houses in which accommodations may be had if desired. Reservations should be made in advance by writing Dr. J. H. Kelley, No. 70 Olive St., New Haven, Conn.

*Place of Meeting.*—The sessions will be held in Harmony Hall, No. 9 Elm Street. This is only two blocks from the hotel headquarters.

*Special Committee Meetings.*—Monday, August 20, 1906: Executive Committee at 1 P. M.; Publication Committee at 4 P. M.

*Special Exhibit.*—Dr. W. Reid Blair, of the New York Zoölogical Park, New York City, will make an exhibit of pathological specimens representing various diseases of wild animals. Others are expected to add to this exhibit.

PROGRAM.

*First Day, Tuesday, August 21, 1906.*

8.00 A. M. Meeting of Executive Committee.

10.00 A. M. Association assembles.

Address of Welcome, Hon. John P. Studley, Mayor of New Haven.

Response by Dr. J. G. Rutherford, of Canada.

President's address.

Roll-call.

Submission of the Minutes of the previous meeting as presented in the annual report and in the records kept by the Secretary.

Unfinished business.

Report of Executive Committee.

Admission of new members.

Reports of Regular Committees:

Intelligence and Education.

Diseases.

Finance.

Publication.

Local Arrangements.

Necrology.

Resolutions.

12.00 Noon. Adjournment.

2.00 P. M. Association assembles.

Reports of Special Committees:

Army Legislation.

Report of Secretary.

Report of Treasurer.

Report of Resident Secretaries.

Discussion of Reports.

Election of Officers.

5.00 P. M. Adjournment.

8.00 P. M. Reception to all members and visitors in the parlors of the Tontine Hotel.

*Second Day, Wednesday, August 22, 1906.*

10.00 A. M. Association assembles.

Reports of Committees.

#### PAPERS AND DISCUSSIONS.

1. "Some Surgical Operations on Bovines"—Dr. J. C. Robert, Mississippi.

2. "Arecoline Hydrobromide"—Dr. P. A. Fish, New York.

3. "The Agglutination Method of the Diagnosis of Glanders"—Drs. V. A. Moore, W. J. Taylor and W. Giltner, New York.

4. "Our Insect Enemies"—Dr. W. H. Dalrymple, Louisiana.

5. "The Angora Goat and Sheep Industry of New England in Danger"—Dr. J. B. Paige, Massachusetts.

6. "The Veterinarian as a Business Man"—Dr. D. Arthur Hughes, Illinois.

12.00 Noon. Adjournment.

2.00 P. M. Association assemblies.

Reports of Committees.

PAPERS AND DISCUSSIONS (*Continued*).

7. "Eradication of Mange Among Cattle in the West"—Dr. A. T. Peters, Nebraska.

8. "Tuberculosis in Swine"—Dr. Richard Ebbitt, Nebraska.

9. "Symptoms and Gross Post-mortem Lesions of Hepatic Cirrhosis in Cattle"—Dr. W. H. Pethrick, Nova Scotia.

11. "The Veterinary Service of the United States Army and the Military Veterinarian"—Dr. Charles H. Jewell, United States Army.

11. "Practical and Applied Surgery"—Dr. C. C. Lyford, Minnesota.

12. "Sentiment a Factor in Meat Inspection"—Dr. S. Stewart, Missouri.

5.00 P. M. Adjournment.

8.00 P. M. Association assemblies.

Reports of Committees.

PAPERS AND DISCUSSIONS (*Continued*).

13. "The City Milk Supply"—Dr. Austin Peters, Massachusetts.

14. "Notes on the Surgical Relief of Roaring"—Dr. W. L. Williams, New York.

15. "Practical Aspects of the Treatment for Roaring"—Dr. J. S. Anderson, Nebraska.

16. "Present Status of the Crusade against the Southern Cattle Tick"—Dr. Tait Butler, North Carolina.

17. "Recent Developments in Immunization against Southern Cattle Fever"—Dr. J. W. Connaway, Missouri.

10.00 P. M. Adjournment.

*Third Day, Thursday, August 23, 1906.*

10.00 A. M. Association assemblies.

Reports of Committees.

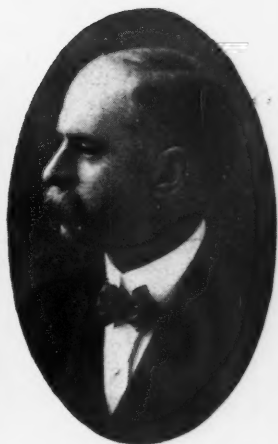
PAPERS AND DISCUSSIONS (*Continued*).

18. "Encephalitis in the Horse"—Dr. M. Francis, Texas.

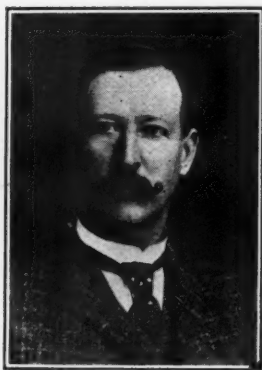
19. "The Negri Bodies in the Diagnosis of Rabies"—Dr. L. Frothingham, Massachusetts.



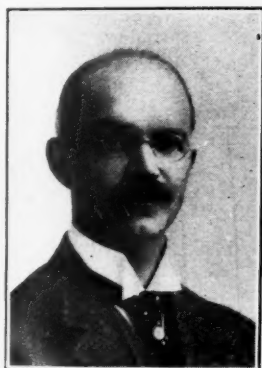
VICE-PRES. J. G. RUTHERFORD.



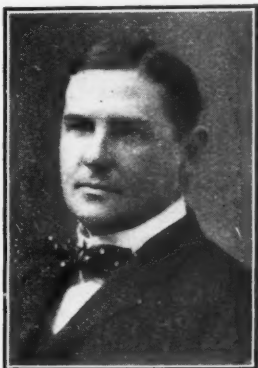
VICE-PRES. W. H. DALRYMPLE.



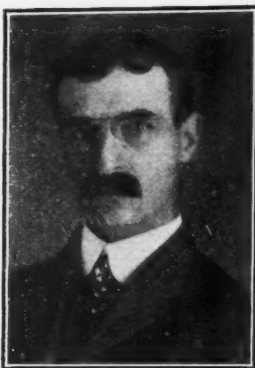
VICE-PRES. E. H. SHEPARD.



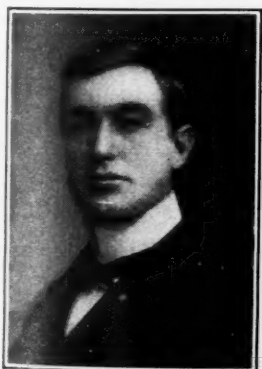
VICE-PRES. C. E. COTTON.



PRESIDENT WM. HERBERT LOWE.



VICE-PRES. R. P. LYMAN.



TREASURER G. R. WHITE.



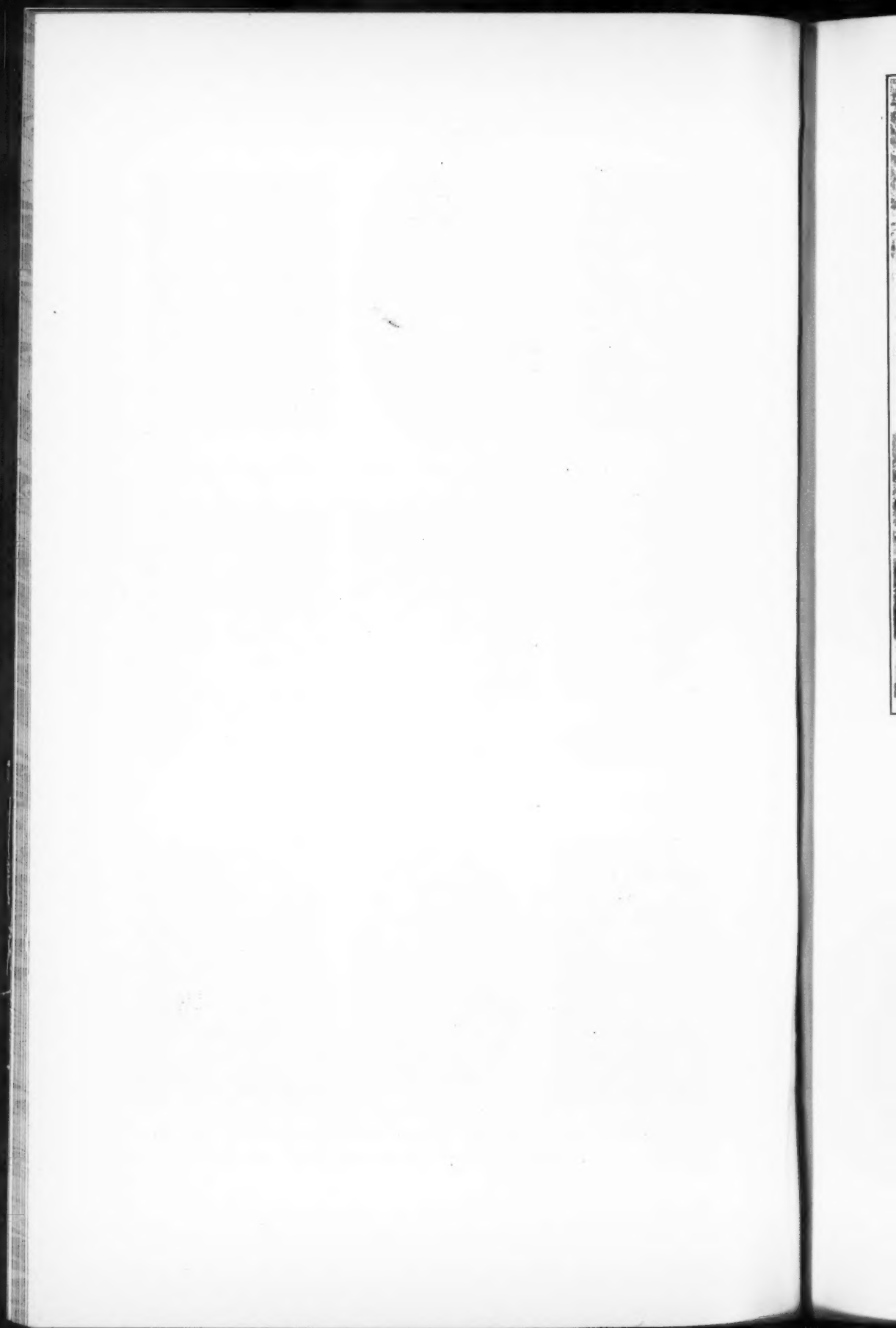
SECRETARY JOHN J. REPP.

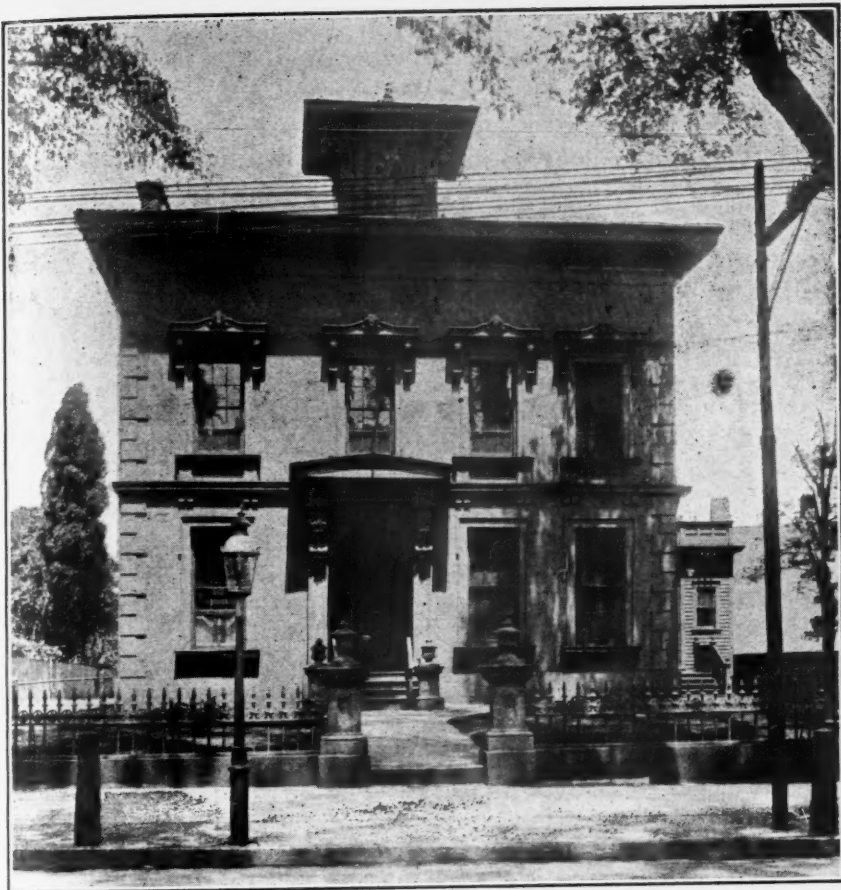


LIBRARIAN W. L. WILLIAMS.

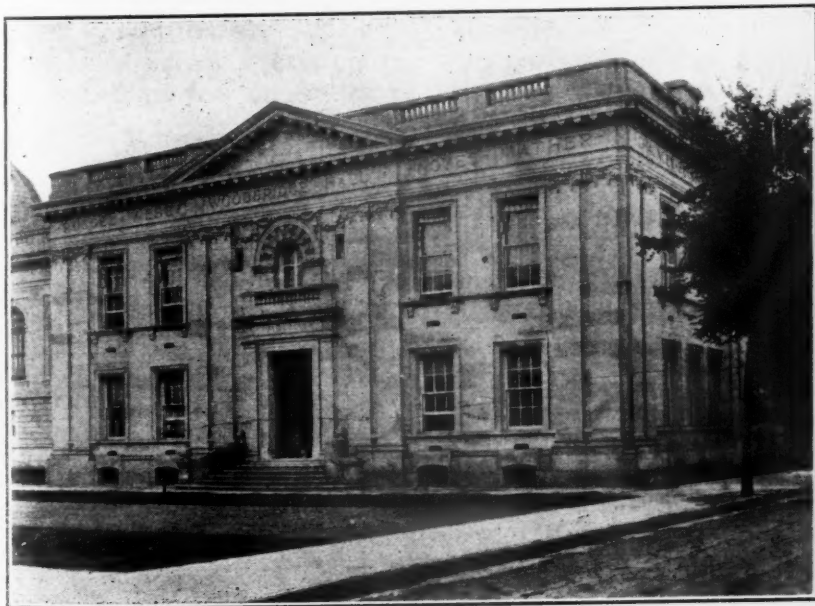
OFFICERS OF A. V. M. A., 1905-06.







CONVENTION HALL, A. V. M. A.—HARMONY HALL.



WOODBIDGE HALL, YALE UNIVERSITY.

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20. "The Veterinary Schools of Europe"—Dr. Leonard Pearson, Pennsylvania.

21. "National Control of Hog Cholera"—Dr. M. H. Reynolds, Minnesota.

22. "The Management of Tuberculosis in Vermont"—Dr. F. A. Rich, Vermont.

23. "Veterinary Practice in the Logging Camps of Canada"—Dr. Thomas Thacker, Ontario.

24. "Veterinary Education in the United States"—Dr. D. S. White, Ohio.

12.00 Noon. Adjournment.

*Fourth Day, Friday, August 24, 1906.*

9.00 A. M. Surgical and Medical Clinic.

The Clinic will be held in a tent in the rear of Harmony Hall in which the sessions will be held. This is only two blocks from the hotel headquarters. Seats will be arranged so that all may witness the demonstrations.

The following will take part in the clinic: Dr. G. H. Berns, Brooklyn, N. Y.; Dr. W. L. Williams, Ithaca, N. Y.; Dr. A. H. Baker, Chicago, Ill.; Dr. G. R. White, Nashville, Tenn.; Dr. W. L. LaBaw, Boston, Mass.; Dr. R. C. Moore, Kansas, City, Mo.; Dr. L. A. Merillat, Chicago, Ill.; Dr. E. C. Beckett, Boston, Mass.; Dr. J. W. Adams, Philadelphia, Pa.; Dr. Leonard Pearson, Philadelphia, Pa.

Among the demonstrations will be operations for roaring, dentigerous cyst, schirrous cord, exostosis of the inferior maxilla, cartilaginous quittor and shoe-boil. There will also be demonstrations of anæsthesia, casting and restraint, diagnosis of lameness, neurectomy for the relief of lameness, and a number of medical cases.

JOHN J. REPP, *Secretary.*

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#### ARRANGEMENTS FOR THE CONVENTION.

The Local Committee of Arrangements, composed of Dr. E. C. Ross (Chairman), Dr. J. H. Kelley, and Dr. H. Whitney, of New Haven; Dr. R. D. Martin, Bridgeport; Dr. H. E. Bates, South Norwalk; Dr. Thos. Bland, Waterbury; Dr. G. W. Loveland, Torrington, and Dr. R. P. Lyman, Hartford, have held frequent meetings, resulting in the compilation of a program sufficiently complete in detail to allow of publication, and which is furnished to the REVIEW by Dr. Lyman. It is as follows:

The headquarters of the 43d Annual Convention will be the Tontine Hotel, 149 Church St. There the meetings of the Executive Committee will be held, beginning Monday, August



20th. The convention hall, Harmony Hall, is situated at 9 Elm St., where also ample space is provided for the Clinic, August 24th. This building, only three or four minutes walk from headquarters, furnishes ideal accommodations for the sessions, committee rooms and also excellent opportunities for the display of exhibits; the latter without interfering with the business of the convention.

#### THE PROGRAM OF ENTERTAINMENT.

The program furnished for the entertainment of members and friends of the members comprises a visit, Tuesday afternoon, to the Yale Campus to inspect the various buildings, among which are Woolsey Hall, Dining Hall, Gymnasium, Museum and indeed many others.

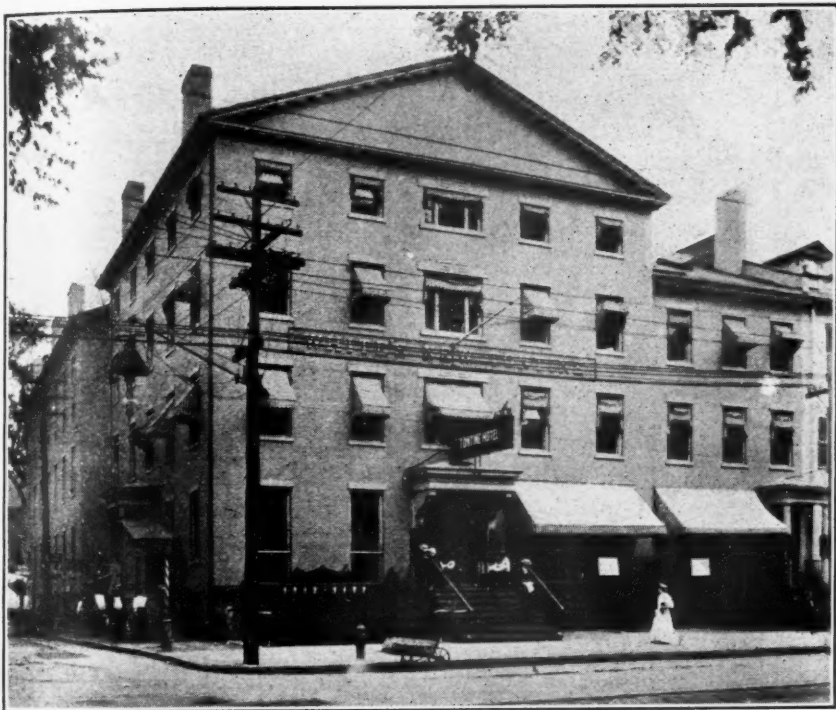
Upon Tuesday evening an informal reception will be held in the parlors of the Tontine. This will afford an opportunity for the ladies to renew former acquaintances and meet the many new ones that it is hoped will attend the annual A. V. M. A. gathering.

Tuesday morning at 10 o'clock the Convention will be opened in the presence of Mayor Studley, Mayor of New Haven, who has kindly offered to give the address of welcome.

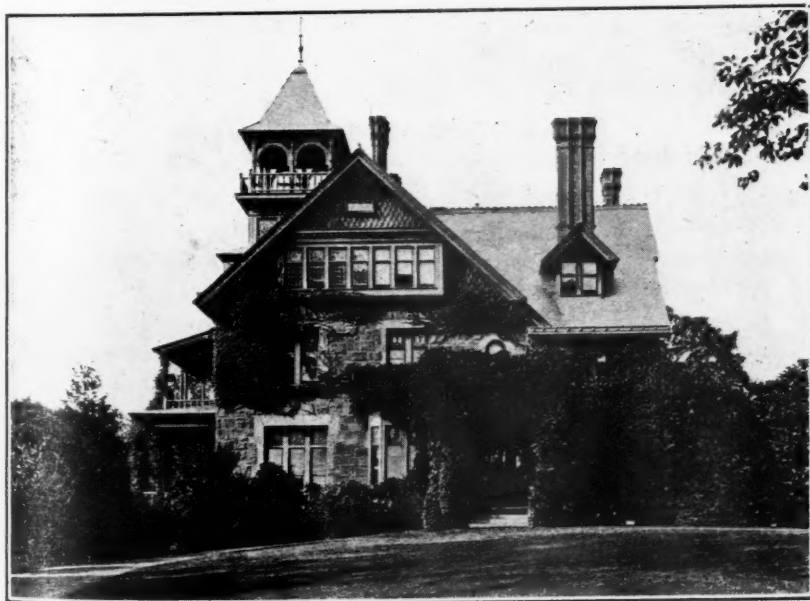
On Wednesday morning the committee have arranged a trolley ride to Woodmont, skirting along the shore in a beautiful scenic trip, returning in time for luncheon. The afternoon will be devoted to a carriage drive around Lake Whitney, visiting Farnum and English Parks, and Soldiers' Monument. The evening entertainment will be a trip to White City, Savin Rock (certainly the Coney of Connecticut).

Another trip is planned for Thursday morning, visiting Light House Point. This trip offers a beautiful view of the sound, New Haven Harbor and Fort Trumbull. Thursday afternoon the members will take a breathing spell and are invited in company with their friends to an excursion upon Long Island Sound, this trip affording a view of the Connecticut shore, and the placid waters of the Sound furnishes a guarantee that all may fearlessly venture thereon. Returning, ample time will be allowed for resting and so prepare for the famous annual banquet in the Banquet Hall of the Tontine, an occasion that it is hoped will be the cause of most pleasant memories for a long time to come.

Friday, during the time devoted to the A. V. M. A. Clinic, the visitors will be given an opportunity for sight seeing and shopping about the city.



HEADQUARTERS, A. V. M. A.—TONTINE HOTEL.



SCHOOL OF FORESTRY, YALE UNIVERSITY.

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THE CLINIC.

The Clinic will be held in rear of the convention hall and demonstrations will be made by many veterinarians prominent in the profession. Among those that have already offered to assist the committee are: Drs. Merillat, Baker, Beckett, LaBaw, Moore (R. C.), White (G. R.), Williams (W. L.), Berns, Adams, Pearson, and others.

The outline of the clinic as thus far completed will consist of a demonstration of various methods of casting and restraining animals for surgical purposes, by Dr. G. R. White, and operations upon animals for the relief of roaring, dentigerous cyst, scirrhus cord, exostosis of inferior maxillary bone, cartilaginous quittor, shoe-boil, and others. Cases for diagnosis are to be furnished by members of the local committee.

## PATHOLOGICAL EXHIBIT.

Dr. W. Reid Blair, of New York, offers an exhibit of pathological specimens that will be on exhibition in a room adjoining the convention hall.

Dr. E. C. Ross, 11 Orange St., New Haven, is Chairman of the Local Committee, and will answer all inquiries in reference to local arrangements.

## TRANSPORTATION.

Negotiations for reduced rate of fare have not at this writing been quite completed, but have progressed so far as to assure a rate of one and one-third fare for the round trip, certificate plan. Full details will be set forth in the official program.

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MISSOURI VALLEY VETERINARY ASSOCIATION.

The twelfth annual meeting was held in the City Hall at Omaha, Nebr., June 18th and 19th, 1906, with Dr. J. S. Anderson, President, in the chair. The following members and visiting veterinarians were present:—Drs. J. D. Tempany, E. H. Biart, A. Plummer, C. J. Hinkley, L. A. DeCow, A. A. Munn, G. Springer, R. A. Huntley, A. W. Carmichael, I. W. McEachran, B. F. Kaupp, H. L. Ramacciotti, G. A. Kay, C. R. McCoppin, C. A. Swanson, G. J. Collins, E. E. Trabert, G. W. Merker, J. E. Strayer, H. Jensen, R. L. Rhea, V. Schaefer, C. E. Stewart, J. L. Hoylman, G. A. Meixel, E. O. Odell, H. Crandall, C. D. Wilson, C. Goodwin, J. Vincent, S. Stewart, J. S. Anderson, J. R. Ebbitt, S. T. Miller, D. H. Miller, W. R. O'Neill, R. Lovell, G. R. Young, F. L. O'Neill, H. C. Simpson, R. Gabler, J. W. Haxby, C. E. Baxter, C. D. Williams, T. W.



Gidley, C. K. Paine, B. Fisher, J. Berg, J. J. Drasky, W. H. Tuck, W. N. Van Nordheim, C. A. McKim, E. F. Stewart, H. L. Feistner, P. Simonson, A. Alexander, M. T. Bernard, J. C. Myers, D. C. Scott, J. A. Dresback, P. Juckniess, and others.

The Hon. J. C. Dahlman, Mayor of Omaha, made an interesting opening address, which was responded to by Dr. S. Stewart, of Kansas City. The President's annual address followed, after which the routine business was attended to. The President appointed Drs. W. R. O'Neill, H. Jensen and V. Schaefer on Board of Censors in place of absentees.

The following names, duly vouched for and favorably passed upon by the Board of Censors, were then elected to membership:

*Missouri*: Drs. D. B. Leininger, A. D. Knowles, J. K. Callicitte, J. P. F. Smith, J. Robards, E. S. Dickey, H. Robbins, S. F. Loffer, J. M. Mayes, J. Stafford, D. E. Warner, B. Deuell.

*Kansas*: Drs. J. V. Lacroix, E. F. Jameson, A. E. Amend, O. Emmitt, E. C. Cravens, E. J. Drake, C. J. Young, W. A. Lyons, H. R. Collins, L. R. Feuteck, R. F. Bourne.

*Iowa*: Drs. A. J. Abarr, W. Elery, R. D. Abarr, C. E. Stewart, B. Fisher, H. C. Simpson, C. E. Baxter, T. W. Gidley.

*Nebraska*: Drs. D. C. Scott, J. C. Myers, R. Lowell, E. Ebbitt, C. A. Swanson, G. Springer, J. A. DeCow, P. Juckniess, J. E. Strayer, H. Pew, C. R. McCoppin, G. J. Collins, E. E. Trabert, H. A. Reagor, D. F. Stouffer, R. Gabler, E. Van Nordheim, E. K. Paine.

*Oklahoma*:—Drs. M. H. Rhoades, W. B. McAlister, E. Pugh, E. D. Kennedy.

*Texas*:—R. L. Rhea.

*Illinois*:—Dr. F. L. Saunders.

The following officers were elected for the ensuing year:

President—Dr. S. Stewart, Kansas City, Mo.

First Vice-President—Dr. H. L. Ramacciotti, Omaha, Nebr.

Second Vice-President—Dr. S. T. Miller, Council Bluffs, Iowa.

Secretary-Treasurer—B. F. Kaupp, Kansas City, Mo.

Board of Censors—Drs. G. J. Collins, R. Ebbitt, Nebraska; C. E. Stewart, Iowa; Dr. E. H. Biatt, Kansas; Dr. G. W. Merker, Missouri.

Dr. John Tempany, who has spent the major portion of his life as an Army veterinarian, and who is now stationed at Fort Riley, Kansas, was elected an honorary member.

Dr. H. Jensen, of Weeping Water, Nebr., gave an interesting talk on the "Sequelæ of Castration." The subject was discussed by Drs. Hoylman, C. E. Stewart, Drasky, Vincent, Schaefer, Simpson, Young, Jensen, and others. There was a great variation in the methods of operating. Dr. C. E. Stewart stated that his method of operation was to cut off the cord as close as possible to the inguinal canal and preferred using an emasculator. Dr. H. Jensen believes that to cut the cord long, the dangling end becomes infected and contributes to the cause of schirrous cord. Dr. J. J. Drasky believed the cause of hydrocele or "water seed" was due to the tunic closing and healing at end, forming a sac receiving the peritoneal fluids through inguinal canal. Dr. J. Vincent stated that he slit the tunic as high as possible, then with the emasculator cut off cord, including tunic, as high as possible, being sure the slit in skin and tunic was 4 or 5 inches long. His experience was that schirrous cord involved both cord and tunic, or outer covering of cord; that he had not seen "water seeds" follow the method he has employed.

Dr. S. T. Miller gave an interesting talk upon the subject of periodic ophthalmia. After reciting the history of many of these cases he gave his methods of operating and results of same. A small incision is made in the cornea at the corneo-scleral juncture, allowing the aqueous humor to escape; frequently a small quantity of purulent material is found in the lower part of the anterior chamber. This operation relieves intraocular tension and rids the anterior chamber of the small quantity of pus and often gives relief for a long time.

Dr. V. Shaefer's treatment is as follows:—R Atropine sulph., 15 grs.; adrenalin, 1:1000, 1 oz. A few drops is injected into the eye twice or thrice a day, then a 1:1000 bichloride pack is placed upon the eye. If pus accumulates in the inferior portion of the anterior chamber, operation is advisable. A vertical incision is made in opening the chamber. Eighty per cent. of the cases are reported to recover if the treatment begins in the early stages. Dr. S. Stewart stated that in the first or forming stage he had good results by shading the eye and using a solution of atropine.

Dr. Miller's experience was that the lens in the advanced stages became irregular in shape. Oftentimes the capsule ruptures and the lens is displaced anteriorly.

Dr. J. S. Anderson noted adhesion of iris to lens, making the use of atropine advisable in the treatment of the disease.

He attributed the opacity of the lens due to the extension of inflammation from the iris by contiguity of tissue.

Dr. R. Ebbitt raised the question as to whether it was a constitutional disease or due, as some authors have stated, to certain climatic conditions that exist in certain localities, or from gas from manure, etc.

Dr. E. C. Hart not being present to offer his paper on pneumonia, the President called upon Dr. S. Stewart to open a discussion. Dr. A. Plummer stated that there was very little pneumonia found in the cavalry horses owing to their good treatment and stabling. One interesting case was reported in which "Tallianine" was used the second day; 10 c.c. was given intravenously; in all five tubes were used. The patient recovered.

Dr. H. Simpson then reported a peculiar case of lameness.

Next the subject of omphalo-phlebitis was discussed by Drs. Schaefer, Jensen, Anderson and others. Dr. Schaefer states that it was present in both colts and calves in Nebraska. Dr. Jensen's treatment when the infection becomes generalized was 5 grs. collagyrum and 60 c.c. water, given intravenously once a day and repeated for three days. Dr. Anderson has found in holding autopsies that the umbilical vein and ureter were filled with pus, which may rupture and cause a fatal peritonitis. It has been his plan to curette the umbilical vein by means of a long slender probe and gauze, gauze being preferred to cotton on account of the danger of leaving some particles of cotton in the vein, then swab out with carbolic acid and turpentine, equal parts. Dr. Simpson uses injections of creolin.

Before adjournment Dr. J. J. Drasky moved that Dr. S. Stewart, H. L. Ramacciotti and J. S. Anderson be reelected to invite the American Veterinary Medical Association to meet in Kansas City, Mo., in 1907. Seconded and carried.

The Association accepted the invitation of the Ak-Sar-Ben to be their guests at their den at 8 P. M.

At 9.30 A. M., June 19th, the meeting was again reconvened, with President Anderson in the chair.

Dr. J. J. Drasky reported two interesting cases, one in which the animal breathed with great difficulty during both inhalation and exhalation. Upon examination the left arytenoid cartilage was found to be as large as three walnuts, partially ossified. The second case was that of a supernumerary eye, which was located in the supra-orbital fossa. An interesting discussion of operations on roakers and the results of same were participated

in. Dr. Miller asked how long after operation before recovery was complete. Dr. Anderson stated that his experience was that the results varied from a few days to three months. He also stated that he did not think that ossification or ulceration of incised laryngeal cartilage was as common as some writers would lead us to think.

Dr. S. Stewart gave an interesting talk upon the subject of vaccinating cattle against tuberculosis, which was freely discussed by Drs. Rhea, Ebbitt, Kaupp, and others. Dr. Rhea stated that in his experience in vaccinating calves that the bovovaccine would produce a reaction the same as follows tuberculin injection if the calf be infected.

At 1.30 P. M. a clinic was held at Dr. S. T. Miller's hospital, 29 Fourth Street, Council Bluffs, Iowa.

*Case No. 1.*—A case was presented in which to all appearances the corpora nigra were abnormally developed, almost entirely occluding the pupillary opening. Other parts of the eye appeared normal.

*Case No. 2.*—A cow with actinomycotic tumor in soft structures of the left side of face was presented. Removal of tumor was performed by Dr. D. H. Miller, of Des Moines, Iowa.

*Case No. 3.*—Cryptorchid; operator, Dr. J. W. Haxby, Villisca, Iowa.

*Case No. 4.*—Cryptorchid; operator, Dr. C. E. Stewart, Chariton, Iowa.

*Case No. 5.*—A case was presented in which there was considerable enlargement in the region of the right maxillary sinus. The animal was placed upon an operating table and operated upon by Dr. J. S. Anderson, of Seward, Nebr. Considerable new growth was curetted out, which afterwards was submitted to Dr. A. T. Kinsley, of the Kansas City Veterinary College, for diagnosis. Upon microscopic examination it was found to be a fibroma undergoing a mucoid degeneration.

*Case No. 6.*—A black gelding was presented with fistula of withers, which was operated on by Dr. P. Simonson, Fremont, Nebr.

*Case No. 7.*—Ovariectomy in bitch; operator, Dr. D. C. Scott, of Omaha, Nebr.

*Case No. 8.*—Cribber; operation, tenotomy of sternomaxillaris tendon; operator, Dr. B. F. Kaupp, Kansas City, Mo.

*Case No. 9.*—Cryptorchid; operator, Dr. J. Vincent, Shenandoah, Iowa.



*Case No. 10.*—A black dog of common breed, noticed twenty-four hours previous to show signs of incoördination of movements. At this time would continually roll from left to right, sometimes would whine. It was thought a slight fullness appeared over the left hemisphere. Ether was administered by Dr. Kaupp and operated on by Dr. Anderson. No injury was found to skull in that region, so it was decided to destroy the dog and make an examination to determine if possible the cause of action. A considerable clot was found in the region of the medulla, which probably caused the pressure on the parts that governed the powers of coördination.

*Case No. 11.*—Collie dog, which has just recovered from an attack of distemper, was presented. Diagnosis, chorea as sequela of distemper.

*Case No. 12.*—A bay gelding of about 1,000 pounds was presented.

*Case No. 13.*—A bay horse, weighing 1,200 lbs., was presented with an enlarged hock of the left leg. Diagnosis, spavin. Prognosis of any treatment, unfavorable, due to the fact that it involved the tibio-tarsal articulation.

*Case No. 14.*—A bull terrier pup was presented for the purpose of having ears trimmed. Operated on by Dr. D. H. Miller, Des Moines, Iowa.

*Case No. 15.*—A bay mare, weighing 1,100 lbs., was presented with a neoplasm involving the lid of right eye. Operated on by Dr. S. T. Miller, Council Bluffs, Iowa. The neoplasm was given to Dr. Kinsley, who made a microscopical examination, and pronounced it a fibro-sarcoma.

By vote of the Association, the semi-annual meeting will be held in Kansas City, Mo.

At 8 P. M. a banquet was held, which ended this interesting and instructive meeting.

B. F. KAUPP, *Secretary.*

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## MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION.

(Continued from July number)

### THE RELATION BETWEEN HUMAN AND BOVINE TUBERCULOSIS.

By DR. W. AMOS.

"The subject of my paper, 'The Relation Between Human and Bovine Tuberculosis,' has absorbed considerable interest of



late years and has been quite interesting to me for some time.

"There has been considerable discussion on the subject and it has received a great deal of attention from scientific experimenters. For the sake of clear understanding we can consider it from three different standpoints.

"First:—Direct experimental transmission of tuberculosis from man to animals.

"Second:—Clinical evidence of its transmission from animals to man.

"Third:—The theoretical considerations.

"The transmission of disease from man to animals is susceptible to direct experimental proof. As early as 1868 some of the French observers proved the possibility of infecting cattle with tuberculosis from man. The experiments were carried out on animals selected from localities where tuberculosis was unknown. In 1879 Bollinger succeeded in transmitting tuberculosis of man to cattle; and others have made similar experiments. We may mention Klebs, Kitt, Crookshank, and more recently Thompson, Nocard, Weslinhoffer, Max, Wolfe, Fibiger, Jenson and others. The most noteworthy were the experiments of Hamilton and Young. They began with twenty calves, of which nineteen were inoculated with human material, and of these fifteen developed tuberculosis, while four resisted inoculation. The diagnosis in all fifteen cases was made by microscopic examination as well as by reinoculation of guinea-pigs, which showed tubercular lesions. This gave conclusive evidence of transmissibility of human tuberculosis to cattle.

"The second phase of the subject and the one that interests us most is the transmission of tuberculosis from cattle to men.

"This is rather more difficult to prove as here we are deprived of the direct experimental evidence. We have, however, a number of cases reported in which accidental inoculation has taken place. Dr. Ravenel, of Philadelphia, reports four such cases, two of which occurred in assistants in his own laboratory. In both these cases the source of infection was known, without any doubt in his mind, to be bovine, which was proven by the excision of the lesion, inoculation of guinea-pigs, and the isolation of the bacillus in pure culture. Other cases have been reported by Pfeiffer, Hartzell, Muller, and Trautman.

"Froje reports the case of a young butcher in good health and with no hereditary tendency who cut his left fore-arm slightly while working on a tuberculous cow. The wound healed under treatment, but six weeks later showed signs of in-

flammatory action, a tubercle formed on the internal side of the elbow. There were two small fistulæ on the fore-arm and enlargement of the ulnar and axillary lymph glands; a month later the middle fore-arm was covered with granulations, which steadily increased in area and, in spite of treatment, at the end of two months more assumed the character of lupus. Histological examination at this point proved the tuberculous character of the disease. Two years after the injury Froje found an abscess which extended into the deep muscular layers. The pus contained tubercle bacilli and the tissues showed typical tuberculous lesions. In this case all possibility of infection from human source was excluded. This, of course, shows only the direct inoculation.

"We have still farther to consider inoculation by ingestion. There has been considerable controversy on this subject, some contending that there is a possibility of inoculation in that way, while others, and of good authority, claim the contrary, but gathering up the evidence from both sides we see that it is pretty conclusively proven that inoculation by ingestion is possible.

"It has been proven repeatedly by experiments that ingestion is an easy way in which to infect animals and we have evidence brought forward by good authority that in mankind this mode of infection occurs also. It must be admitted, however, that in the clinical cases we are liable to find in all of them some defect, as it is almost impossible to exclude positively all other sources of infection. The evidence that we have, however, is as good as that we have in many cases which we admit to be by inhalation. It is generally accepted by all who worked along these lines, that inhalation of dried sputum or infected air is the chief source of infection from man to man, yet if strict proof of this is demanded very little positive evidence can be brought forward. Of the cases of clinical infection I will cite the one reported by Dr. Gosse, of Geneva. His own daughter was infected and died of tuberculosis by drinking the milk from a cow with tuberculosis of the udder. The doctor performed a post-mortem and gave the results to the scientific world.

"Directly in line with infection by ingestion comes the consideration of post-mortem evidence of primary intestinal tuberculosis. In England we have a general average, as reported, of about 25 per cent. Prof. Knepe, of Germany, says that the percentage of primary intestinal tuberculosis in that country is

from 25 per cent. to 35 per cent. of all children dying from tuberculosis.

"Perhaps the strongest evidence that we have of the infection of human beings by the bovine tubercle bacillus is the finding of bovine tubercle bacillus in the intestines of children who died of intestinal tuberculosis. The first of these cases reported was from the laboratory of the Pennsylvania State Live Stock Sanitary Board, the material having been sent by Dr. Alfred Hanet, of the Children's Hospital of Philadelphia. In his pathological report he states that it was the clearest case of intestinal tuberculosis that he had ever seen. The organism was isolated in pure culture and found to respond in every way with bovine tubercle bacillus.

"It is stated that bovine tubercle bacillus has a pathogenic power greatly in excess of that shown by the human bacillus in all the experimental animals tried; the bovine tubercle bacillus, it is reported, shows this excess of virulence. In the different animals in which these experiments have been tried there is no case in the literature so far in which one single species of animal is more susceptible to the human tubercle bacillus than to the bovine, and farther this greater virulence of the bovine bacillus has been shown by whatever method of inoculation has been used. Now, then, if all other animals succumb more quickly to the bovine bacillus than to human, would it not be strange if man, one of the most susceptible beings, should show an immunity to the most virulent form of tuberculous virus known. I think we are safe in concluding that this increased virulence must hold good for man also, at least we can consider it as being possible and be guided accordingly, especially in the treatment and handling of all cases where the predisposing cause of the disease or, in other words, of the infection is hard to find, especially if there runs a very virulent course in human. In such a case, in my judgment, it would be advisable to investigate the food supply, such as milk, which by the way is considered by human practitioners as the best diet in all wasting diseases, also the meat used in feeding the sick. Right here I wish to say that it is not only for the benefit of the sick that we should be on the lookout for such a source of contagion in the food supply, but it will be of still more benefit to the rest of the family if they are warned of the danger where such a condition exists. Here, on a timely warning depends the future welfare of the rest of the family as well as the sick ones.

"In conclusion, I would say that I have written this paper

for the purpose of calling the attention of the members of this association to this form of contagion of the disease tuberculosis so that if any one of us should be so unfortunate as to have such a condition to deal with to make a thorough investigation of the case and make a clinical report to the society. Should I be successful in starting a fruitful investigation in this direction by the members of this association then this paper will have served its purpose."

#### DISCUSSION.

*President Price:* We have listened to Dr. Amos' most thorough paper on this much-discussed subject, and I look for a thorough discussion.

*Dr. Amos:* There is one question I would like to ask: What number of cases in calves do you find compared with cases in the grown-up animals? We have with us a number of Federal meat inspectors, who may be able to tell us.

It was suggested that Dr. Ketchum had a paper relating to this subject and that the discussion follow his paper.

*Dr. Ketchum:* The question was as to the percentage of calves that were found affected on post-mortem. My paper does not touch on that at all. It has altogether to do with the number of parts that are affected with tuberculosis. It might be well, perhaps, before giving my paper to state that the percentage of calves is not very large as compared with the number of cattle. I do not remember exactly what it is; we do not, however, find a great many calves as compared with the number of cattle affected with tuberculosis.

*President Price:* The result of investigations by the Hollanders, who have done it most thoroughly, has been that calves are very seldom born tuberculous and that by feeding them with healthy milk they can be raised absolutely free from tuberculosis, which would carry out Dr. Ketchum's experience.

Dr. Ketchum then presented his paper.

#### THE INCREASE OF TUBERCULOSIS AMONG SWINE.

By F. D. KETCHUM, M. D. C.

"The statement that tuberculosis of swine is prevalent and is showing a steady and rapid increase will probably be of interest to the members of this association.

"Writers on animal tuberculosis have taught that though this disease was quite common among cattle it was rarely found among swine. A few years ago this was undoubtedly true, as inspectors of the Bureau of Animal Industry did not observe,



until about the year 1900, that the number of hog carcasses condemned for tuberculosis showed a marked increase over previous years.

"During the fiscal year 1898 and 1899 there were slaughtered under Federal inspection 44,841,779 hogs, of which 4,021 were condemned for tuberculosis. That is, an average of one case of tuberculosis was found in about every 11,152 hog carcasses inspected.

"In the fiscal year 1900 there were inspected at slaughter 23,428,996 hogs, of which 4,379 were condemned for tuberculosis, or one in about every 5,350, which is an increase of more than 100 per cent. of the average for the two preceding years.

"Now, in order not to try your patience too much with statistics, it may be said that the disease has shown a steady increase since that time. In 1903, the last year for which complete statistics are available, one hog in each 1,076 was condemned for tuberculosis. The statistics for 1904-05 have not yet been published, but will probably show about the same rate of increase as did the years from 1900-03.

"It is interesting to compare the number of cattle found to be affected with tuberculosis during the same periods. In 1898 and 1899 there was one beef carcass condemned for tuberculosis in each 1,259 carcasses inspected. In 1903 one in each 717. In other words, the number of cattle condemned for tuberculosis increased approximately 75 per cent. during the six years from 1898 to 1903 inclusive, while the number of hogs condemned for that disease increased more than 1,000 per cent. during the same years. Or, to make the comparison in another way, in 1898 and 1899 an average of one beef carcass was condemned for each 1,259 inspected, while in 1903 an average of one and three-fourths carcasses were condemned for each 1,259 inspected. In 1898 and 1899 one hog carcass was condemned in each 11,152 carcasses inspected, while in 1903 nearly eleven carcasses were condemned for each 11,152 carcasses inspected.

"It is also worthy of note that the number of hogs condemned for tuberculosis in 1903 exceeds by more than 1,000 the number condemned for both hog cholera and swine plague.

"In commenting on tuberculosis the Secretary of Agriculture in his report for 1905 says: 'It is not uncommon to find herds of dairy cattle where 50 to 90 per cent. of the animals are affected with this disease, and in our meat inspection service there have been found in some large abattoirs nearly 3 per cent. of hogs with tuberculosis.'

"In looking for the cause of this extensive increase of the disease among swine, we naturally attribute the source of infection, in a large percentage of cases, to cattle. With the present knowledge of the transmissibility of bovine tuberculosis, it is readily understood that the feeding of milk from cows affected with the disease will cause infection in a large per cent. of the animals so fed. Creameries to which the milk is hauled, run through a separator, and all the milk gathered at one time or during one day is placed in a tank from which it is distributed to farmers and stock feeders for feeding purposes, are probably responsible, to quite an extent, for the spread of the disease. If there is one herd or even one cow affected among those supplying a creamery with milk handled in this way, then all the milk with which that from the affected cow or cows is placed is contaminated, and every pig or calf fed with it is exposed to infection.

"It would seem that the danger from this source might be almost entirely eliminated if the milk were thoroughly sterilized after being put through the separator. Some creameries are now sterilizing the milk before returning it to the farmers and stock feeders, but this innovation is too recent to show results.

"Another source of infection, and one which cannot be too much reprehended, is the practise of allowing hogs to eat the carcasses of animals which die a natural death or the viscera of those slaughtered for food. In allowing this there is danger of causing the spread of not only tuberculosis, but other contagious diseases as well.

"The yarding of cattle and hogs together in the same sheds and pens where the hogs eat food which has been picked over by the cattle and also their droppings, is another source from which hogs may become affected.

"In one instance which came under the observation of the writer fifty-four hogs out of a carload of 76 were condemned for tuberculosis. On investigating the origin of this infection it was found that more than 50 per cent. of the cattle owned by the man who raised these hogs were affected with tuberculosis; that these hogs had been kept in the same pen with the affected cattle, had eaten grain and food left by them, and that at least one of the cattle had died and the hogs had eaten the carcass.

"In the way of prevention nothing new can be suggested. The present methods seem to be inadequate, chiefly, perhaps, because of opposition on the part of a majority of the owners of

valuable herds of cattle, who do not have them tested on account of the loss which would follow if a number were found to be diseased. The only remedy now known is to test all cattle and slaughter those that react. Until this can be done sterilize the milk before feeding it and keep hogs and cattle separate as much as possible.

"Unless something effectual is done soon to better these conditions, the live-stock industry will receive a check from which it will not recover for years, and too much cannot be said to attract the attention of stockmen to this important subject and to bring about the adoption of measures which will tend to stop this rapid spread of tuberculosis."

#### DISCUSSION.

*President Price:* Dr. Ketchum's paper is now open for discussion. I think it is a subject in which we are deeply interested.

*Dr. Beebe:* I am quite a firm believer that there is a large number of cases of tuberculosis both in man and animals resulting from infected food, especially milk. Von Behring has done a large amount of work along this line and he claims that young animals are especially susceptible to tuberculosis because the intestinal mucosa is imperfectly developed at that time, which consequently allows the organisms to pass through the mucosa into the lymphatic system. He has shown further that infection in this way may result in a localization of the disease in the lungs. He also advances the theory that there is a large percentage of young animals that become infected that will not show lesions until a considerable length of time after the infection has taken place, but the lesions develop months afterwards. I think the majority of people who are authority on this subject do not agree with Von Behring that the lesions develop months afterward, but I am of opinion that in young animals there is a large percentage of them that become infected from the use of milk from tuberculous animals.

*President Price:* Dr. Beebe being our bacteriologist, I think will have to explain to us where the leucocytes originate, whether in the intestinal canal or elsewhere. Some of our most recent investigators claim that the intestinal mucosa generates the leucocytes, and it is in the intestinal mucosa that all obstruction or infection of parasites takes place. Where the intestinal mucosa is destroyed or weakened by invasion of imperfectly digested material, a toxemia results which destroys

the vitality of these cells which become leucocytes, consequently their activity is lessened and infection takes place.

*Dr. Beebe*: I do not know that I can say anything on that point. I think perhaps Dr. Price is better prepared than I am. He seems to be familiar with the production of the leucocytes and I will not attempt to discuss their production.

*Dr. Gould*: In speaking of the pasteurization of milk, I believe that we have a law regarding this, and I think the creameries should be called to account. I know in my own practise I find several outbreaks of hog disease, possibly due to milk from creameries, and I think the law is quite plain on it if it is carried out. Another thing I noticed in the *Breeder's Gazette* is an advertisement of a sale by Edwards & Co., and they advertise the fact that they have had the Bang system in effect for many years and can give a bill of health with every animal. I think it is a sign that breeders are looking into this fact, and it will only be a matter of time when every live-stock breeder of any account will have to assure his patrons that he can give a clean bill of health.

*Dr. Amos*: Regarding the pasteurization of milk, it is getting where the creameries only get the cream. I think I can say that in Steele County 25 per cent. of the farmers have their own separators and only take cream to the creameries.

*Dr. Gould*: The buttermilk is taken back to the farm.

*President Price*: I would like to ask Dr. Ketchum if in these cases of infection of hogs he has been able to trace it up to the milk supply.

*Dr. Ketchum*: Owing to the way hogs are usually handled at the large abattoirs it is impossible in most cases to locate the farm from which a certain hog or a certain lot of hogs originate. All the hogs bought during the day are thrown together and then sorted according to grade and are killed in lots as sorted. Hogs from one carload may be slaughtered in half a dozen or more lots, and as 25 to 50 carloads, each from a different locality, are frequently slaughtered in one day, it is impossible to trace any of them back to the farm. In only a few cases, the one mentioned in my paper and a few others where the disease was suspected, have we been able to trace hogs back to the farm where they originated.

#### IMMUNITY.

By DR. W. L. BEEBE.

"Inasmuch as in the last few years much work has been done



to elucidate the theory of immunity, it seems a fitting time to give a brief *résumé* of the result of some of the investigations.

"By immunity we mean the non-susceptibility to a given disease, or to a given organism, either under natural or acquired conditions. Certain species of animals are normally immune to certain infectious diseases; for instance, horses are immune to black-leg and cattle are immune to glanders. That is to say, when they are exposed to infection under natural conditions. From this fact, however, it does not follow that when the organisms of the respective diseases are introduced into the body by artificial methods of inoculation, pathogenic effects may not follow. This is exemplified experimentally by infecting a rabbit with swine plague, although they do not do so under normal conditions. Therefore, it follows that immunity is of varying degrees; such a thing as absolute immunity is scarcely known.

"It may be well to consider race immunity here, although it properly belongs to acquired immunity. This form of immunity is probably an acquired tolerance, due to natural selection and inheritance. If, for example, a susceptible species of animal is exposed to the ravage of some infectious disease, the least susceptible will survive and may bring forth young who will be likely to inherit this special character.

"The tendency to continuous or repeated exposure to the same pathogenic agent will eventually be to establish a race tolerance and there is reason to believe that such has been the effect in the case of some of the infectious diseases in man; e.g., syphilis and small-pox, which prevail with great severity when introduced to a population free from the disease. A very remarkable instance of race immunity is that of Algerian sheep against anthrax, a disease which is very fatal to other sheep.

"In addition to this general race immunity we have individuals differing in resistance to the action of pathogenic bacteria which may be natural or acquired. A very marked difference in susceptibility is shown in hog cholera: the most susceptible contract the disease early in the outbreak and die off rapidly, while in the more resistant animals the period of incubation and duration of the disease is longer.

"But these resources of nature upon which natural immunity depends may be neutralized by various agencies which demand consideration. It has been shown by experiment that animals normally immune may be infected by the addition of certain substances to cultures of pathogenic bacteria. Thus Arloing was able to produce symptomatic anthrax in animals

naturally immune by mixing with cultures various substances, such as carbolic acid, pyrogalic acid, etc. Further, certain foods or drugs in the food may reduce the resisting power of the host. Behring asserts that he has demonstrated by experiment that white rats lose their immunity for anthrax by feeding them on a diet exclusively vegetable in character, or upon the addition of phosphate of lime to their food.

"Perhaps, therefore, the harmless parasitic organisms on the respiratory and digestive mucosæ identical in morphology and cultural characteristics to certain disease-producing germs, such as swine plague, hæmorrhagic septicæmia, etc., may become pathogenic under similar conditions. For instance, the resisting power of the host may become lower from dietetic, hygienic or other conditions, thus allowing the organisms to gain foothold in the tissues and acquire disease-producing properties.

"Acquired immunity is that obtained by the introduction of organisms, or their products, in sufficient quantities into the system, or by an adequate amount of serum of another animal highly immunized against a specific organism. The former is called active, while the latter is called passive. Active immunity is obtained by (a) injections of the organisms either in an attenuated condition or in sublethal doses or by sublethal doses of their products; i.e., (using this term in a rude sense) of their toxins. By repeated injections at sufficient intervals the doses of organisms or of the products can be gradually increased; or, the same amount of an organism of greater virulence or a toxin of greater strength may be used. By this method a very high degree of immunity can be developed. An attenuated organism is used in black-leg, anthrax, and chicken cholera, vaccination, etc. Such a method as this is, however, only preventive, as the immunity must be developed before the onset of the disease.

"Passive immunity is produced by introducing into the system serum from another animal that has previously been highly immunized against a specific organism by some one of the methods for producing active immunity. This serum when injected into the system produces immediate effect and can thus in many cases forestall the disease if infection has taken place, or if the disease has declared itself it has a decided therapeutic action. This is the form of immunity obtained when antitetanic or antistreptococcic serum is used. Notwithstanding its immediate action it has the drawback of being very transitory in its effects. If, for instance, it is necessary to produce immunity

immediately and have it effectual for a considerable length of time, it will be necessary to make injections at intervals.

"In the foregoing pages I endeavored to touch briefly upon the different kinds of immunity and how they are produced; but now let us consider why they are caused. It is the desire of the bacteriological workers to learn as much as possible about the cause of certain phenomena, the same as it is with the industrious veterinarian to endeavor to ascertain the cause of certain complicated cases. Therefore many bacteriologists have worked with untiring efforts for years on this phase of the subject and now offer the following quite plausible solution of the problem.

"If a pathogenic organism or its products are introduced into the body, the system at once begins to fortify itself against this unwelcome invader by throwing out atomic bodies into the plasma which join themselves to the poison molecule, on account of the great affinity they have for it, and thus make the toxin inert.

"The quantitative experiments of Ehrlich upon diphtheria toxin and the filtration ones by Martin and Cherry with the same, and also upon snake venom, seem to prove that the interaction between toxin and antitoxin is a chemical combination analogous to the combinations of an acid with a base; e. g., silver nitrate and H. Cl., an innocuous compound being formed. And it is thought that the rules of the interactions are the same as those in chemistry. Thus, cold retards, while concentration and warming hasten the combination and a lapse of time is required for the complete interaction to take place. A mixture of toxin and antitoxin kept in contact for a short time may still be toxic, but after a longer time becomes non-toxic. If a certain definite amount of diphtheria antitoxin, which may be termed one immunizing unit, be mixed with varying quantities of a given toxin, an amount of the toxin which is exactly neutralized by this amount of antitoxin—that is, by one immunizing unit—can always be determined. Ehrlich found, for example, on using one-tenth of an immunizing unit of antitoxin, that the quantity of a certain toxin which was exactly neutralized was .24 c. c. On making an analogous determination with one immunizing unit the maximum amount of toxin which could be given with it without producing any effect, that is, was exactly neutralized, was found to be 2.4 c. c., just ten times the previous amount. It was shown that antitoxin does not pass through a Chamberland porcelain filter that had been previously soaked

in hot gelatin, while bacterial toxin will pass through. As the toxin is not held back by the filter, whereas the antitoxin is, this provides a physical means of separating them, providing they have not reacted upon each other. Martin and Cherry mixed diphtheria toxin with sufficient antitoxin to make them completely neutralize all the toxin. This mixture was allowed to remain in contact at 30°C. for two hours, and was then filtered through the gelatin filter. The filtrate was found to be quite innocuous. If the toxin had remained unaffected it presumably would have passed through the filter. As it did not do so the conclusion is that it had entered into some sort of chemical combination with the large antitoxin molecule.

"Another method was employed with snake venom. One of the toxic constituents of snake venom may be heated to 90°C. without injury, whereas the snake venom antitoxin or antiserum is rendered inactive by heating to 68°C. for ten minutes. Martin and Cherry made mixtures of antiserum and venom and at stated intervals removed small portions, heated them at once to 68°C. to destroy the antitoxin and injected into animals. It was found that when the antivenin and venom were kept in contact for only a short time, two to ten minutes according to the amount of venom, death ensued; whereas when kept in contact for a longer period the animals in all cases lived, showing that as for all chemical combinations time is an important factor. These experiments seem to prove that the neutralization of toxin by antitoxin is due to a chemical union or combination. The toxic action of toxin *in vivo* would also seem to be due to a chemical union between the two; and Ehrlich assumes toxin made up of molecules that possess two different combining groups: one, which may be designated the heptophore group and unites with the heptophile group of the cell, while the other may be designated the toxiphore and united with the toxophile group of the cell. If toxophile group be absent, the toxophore group of the toxin is unable to act, and no toxic action follows. This union is similar to the way a key fits into a lock and only certain forms of toxophore and heptophore groups will fit certain forms of toxophile and heptophile groups. Ehrlich suggests that the heptophile and toxophile groups subserve normal functions in the animal organism, and that they only incidentally, and by pure chance, possess the capacity to unite with this or that toxin, for it is inconceivable that these atomic groups should exist simply for the purpose of fixing various toxins. Now if an animal be injected with a



sublethal dose of toxin, the toxin becomes united by its heptophore group to the heptophile group of the cell bioplasm that fits. The union is a firm and enduring one, and the heptophile or receptor involved cannot exercise their normal physiological functions while this union lasts. Now Weigart has worked out the theory that such a defect is replaced by regeneration. Therefore, new heptophile groups similar to those which have been thrown out of action by the union with the toxin, are reproduced, and if more toxin be injected, again unite with it and this union of receptor and heptophile, similar to those which have been thrown out of action by the union with the toxin, are reproduced, and if more toxin be injected, again unite with it, and the union of receptors with toxin and regeneration of the receptors be repeated again and again, and the cells become educated as it were to reproduce the necessary receptors in ever increasing quantity. This accounts for the immunity which may be induced by gradually increasing doses of toxin. Whereas at first the cells possess comparatively few of the receptors in question and a small amount of toxin would therefore create a serious defect or lesion, when these receptors have become very numerous much more toxin may be injected without injury; that is, an immunity exists. But Weigart has shown that simple replacement does not take place, the compensation proceeds far beyond the necessary limits until at last the receptors are produced in such excess that the majority are no longer capable of remaining attached to the cells, but become free in the blood. This excess of receptors in the blood is antitoxin. The antitoxin represents the receptors reproduced in excess during regeneration and therefore pushed off from the bioplasm of the cells and so coming to exist in a free state in the blood.

"These facts hold good for diphtheria and tetanus which seem to be different from most other infective diseases, such as anthrax, chicken cholera, hæmorrhagic septicæmia, etc. The former are essentially diseases produced by the absorption of soluble toxin, while the microorganisms remain for the most part localized. In anthrax, fowl cholera, etc., on the other hand the toxins are apparently to a large extent inherent in the bioplasm of the bacterial cells. If an animal is highly immunized to one of these organisms it is found that its serum has little protective properties when injected into another animal.

"Experimental evidence goes to show that there are two

substances at least which are concerned in this reaction: one a specific immunizing body different for each microbe are found in the serum only after treatment."

#### DISCUSSION.

*President Price:* We have all listened to Dr. Beebe's very interesting and explicit explanation of immunity, a subject which has puzzled all of us for a number of years and which he has explained very fully and thoroughly. It is a subject which has been heretofore in the dark to everybody, including the most scientific investigators. We would be glad to hear from some of those present.

*Dr. Lyford:* May I ask Dr. Beebe a question? He speaks of tetanus and I want it better brought out that the germ in tetanus is not in the blood, that it is simply localized; that is, the main poison that passes through the nerve medium. Dr. Merillat gave us a very nice paper on that in Chicago a few weeks ago. One of the things that was very interesting to me was the question of inability to kill the germ. The question of what was required to kill the germ, and the question of treating the germ in any other place except locally at seat of inoculation, and he claimed that even boiling 5 to 15 minutes would not kill the germ—that hydrochloric or carbolic acid, or any of the other antiseptics or escharotics were little better than water comparatively, and in killing a germ that there was probably no way of getting rid of it even with a hot iron thrust into it, unless very thoroughly seared. Many of these experiments had been tried, and it seemed very heroic treatment. He said that creolin and all of those things were just as good as nothing. I do not remember of his speaking of iodine, but said that extirpation was about the only way to get rid of it, as immediately around the wound the germs were localized, and he claimed that was about the only way to get rid of the toxic effect. If you cut it out early enough before the toxins have developed through the system, you stood a good chance of cutting off the supply. Of course, a very severe case of tetanus having generated, a good deal of the effects of toxin and toxin poisoning would be much more certain. If gotten at in time, your chances would be better. I thought Dr. Beebe might give us a few more points on it, and though not connected directly with his paper I would be glad to hear more of the tetanus germ if he could give it to us under that head.

*Dr. Beebe:* Tetanus is a disease in which the union of the

toxin and nervous matter is very well marked; for instance, if we take a certain amount of nervous matter from the central nervous system and mix thoroughly with toxin that is produced by the tetanus germ and inject it into a susceptible animal the result is that the animal will live providing there is sufficient nervous matter to unite with all of the toxin present, whereas if the toxin was injected without the nervous matter the animal would die in a very short time from tetanus, thus showing that there is a sort of chemical combination or union between the two substances. As Dr. Lyford mentioned, the organism remains localized, while the toxin is supposed to travel along the nervous trunk. The toxin unites with the nervous matter very firmly; for example, if the toxin had become united with the nervous matter it seems almost impossible to break this union. As I mentioned in my paper, this union resembles the way a key fits into a lock. When antitoxin is used it must be administered very early before this combination takes place, for after the toxin has become united with the nerve elements the antitoxin has no effect whatever. If it can be used early enough the antitoxin will unite with the toxin and thus make the toxin inert.

*President Price:* I will call on Dr. Gould. He has had success with probably the most rational treatment of this disease.

*Dr. Gould:* Since I read a paper here I treated a case, but it was one of those cases that might have gotten well any way. The animal could eat. The hip, back and neck muscles were quite hard, but the animal consumed quite a large quantity of acid. It was a case, as I say, that would probably have gotten well any way.

*President Price:* Sajons, of Philadelphia, has lately introduced a theory that the secretion of the ductless glands are essential to immunity. The ductless glands have always been looked upon as something strange. We did not know what they were there for. Sajons has introduced a theory that these ductless glands are entirely essential to life, that if you destroy these glands life's functions cease. In regard to tetanus he claims that the secretion of the adrenals is entirely essential to the oxidations that take place in the body. You can destroy the brain and remove it in sections from birds and life continues, but if you destroy the pituitary bodies you destroy life. These are small bodies in the human brain. The posterior is the smaller one, according to his theory. These glands control

the thyroids and the thyroids through their secretion control the activity of the adrenals. The one is entirely dependent on the other and through their activity and secretions life is continued. In tetanus, we have, as Dr. Beebe has explained, a chemical combination taking place between the toxin and the nervous matter which is indestructible, the same as you have between tannin and iron. Dr. Sajons' theory is to stimulate the adrenals and by their secretion stimulate the life processes, causing the destruction of bacteria and their toxins. How are we going to do this? He claims that carbolic acid is an active stimulant to the adrenals. Unfortunately we always try to give something to quiet the nerves; cannabis indica, bromide, quinine,—every one of which destroys the activity of the adrenals. Here we are giving antagonistic remedies, the action of one overcoming the other. If we are going to give carbolic acid treatment we have to stick to carbolic acid and give it alone, and nothing with it. Otherwise we are giving something that overcomes the stimulation that the carbolic acid produces, and we get no benefit from our "carbolic acid treatment."

*Dr. Gould:* I did not use carbolic acid with the intention of stimulating those adrenal glands, but since talking with Dr. Price I think the action is a great deal more reasonable than I first supposed it to be, because it does have a paralyzing effect on the nerves, especially to the muscles, and we get stimulating action in that way, where, if we used chloral hydrate, we would not get that stimulating effect on the adrenals, but would get a deadening effect at the time we get our paralyzing effect on the motor nerves. Reasoning along this theory that would be the ideal remedy for tetanus. This case I speak of was one of those slow cases. Of course, it had been showing symptoms of tetanus for probably a week before I saw it, just gradually getting worse, and even with the carbolic acid treatment the disease apparently did extend somewhat, gradually subsiding after that. Whether it was due to the action of the acid, of course I do not know. I did not get the animal to consume a great quantity of the acid.

The patient was about ten miles from home, and I had to trust the owner to give it, but the animal consumed some of the acid.

*President Price:* In regard to that, I would state, that you can overstimulate the adrenals, the same as you can overstimulate a person with alcohol. Remember that overstimulation always results in paralysis.



## NEW YORK STATE VETERINARY MEDICAL SOCIETY.

ANNUAL MEETING, SEPT. 11-13, BUFFALO.

The forthcoming meeting promises to be of very great interest. The literary program, not yet complete, is already highly attractive in the wide range of subjects and high character of the contributors. The papers on veterinary education in New York, one by a distinguished educator, the other by an equally prominent practitioner, with the relation of education to license and practice, will inevitably induce a discussion which will appeal to each member of the profession. A representative of the State Educational Department is expected to be present to participate.

Dairy and milk inspection are to be thoroughly considered and the program is rich in papers having a direct interest to veterinary practitioners. The list of papers is not complete and important additions are expected. The clinic, as has been the rule in the past, is to be made a very prominent feature. The local committee has secured suitable accommodations for the meetings and a complete announcement of the convention will be issued shortly. It is expected that the Genesee Hotel will be headquarters.

The program as far as completed is as follows:

"Veterinary Education in New York," Dr. James Law, Ithaca.

"Veterinary Education in New York," Dr. E. B. Ackerman, Brooklyn.

"Dairy Inspection," Dr. H. D. Gill, New York.

"Dairy and Milk Inspection," Mrs. C. H. Cocke.

"Municipal Milk Inspection," Dr. W. G. Hollingworth, Utica.

"Rabies: A Discussion of its Etiology, Diagnosis, Dissemination and Control," Dr. Veranus A. Moore and Mr. Cassius Way, Ithaca.

"A Supposedly Tuberculous Cow that Failed to Tuberculin," Dr. S. H. Burnett, Ithaca.

"One Way of Treating Toe- and Quarter-Cracks," Dr. Roscoe R. Bell, Brooklyn.

"Peculiar Fatal Cases with Post-Mortem Notes," Dr. Louis Juliand.

"Canine Toxæmia," Dr. P. A. Fish, L. S. Backus, and Ward Giltner, Ithaca.

- "Influenza or Shipping Fever," Dr. W. G. Dodds.  
"Influenza or Shipping Fever," Dr. E. E. Dooling.  
"Typhoid Influenza," Dr. George H. Berns, Brooklyn.  
"Eczema: Clinical and Post-Mortem Notes on 'Sysonby'," Dr. William Sheppard, Sheepshead Bay.  
"Fracture of the Sesamoid Bones," Dr. J. L. Wilder, Brooklyn.  
"Milk Fever," Dr. Wilson Huff, Rome.  
"Observations on Colics, Volvulus and Intussusception," Dr. J. F. DeVine, Goshen.  
"Local Anæsthesia," Drs. W. S. Eggleston and J. F. Miller. Subject not yet stated, Dr. J. W. Corrigan, Batavia.  
Exhibition of Pathologic Specimens, Dr. W. Reid Blair, New York Zoölogical Park, New York.

#### PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

This Association will hold its semi-annual meeting at Gettysburg, Pa., Sept. 18th, 1906. A good program has been arranged and a very enjoyable meeting is anticipated.

C. J. MARSHALL, *Secretary*.

At the annual meeting of the Missouri Valley Veterinary Association, at Omaha, Neb., in June, fifty-five new members joined this flourishing organization. At its present rate of increase, it will be but a short time before it will outnumber the A. V. M. A.

A REPORT of an auction sale of branded horses at Portland, Ore., states that two carloads were recently sold at an average of \$35. Some years ago when salt horse was being barreled at the Linnton, Ore., cannery, the same sort of animals sold at \$1.50 per head.

"THE IOWA-NEBRASKA VETERINARY BULLETIN" states that Drs. Peter Simonson, E. F. Stewart, H. Jensen, J. S. Anderson, Richard Ebbitt, C. A. McKim, and A. T. Peters are making arrangements to attend the New Haven meeting of the A. V. M. A.

DRS. J. S. ANDERSON, H. Jensen, J. H. Gain, and C. A. McKim attended the Nebraska Stock Growers' Association at Alliance. They had a very large tent, 40 x 60, under which hundreds of stockmen were seated to witness operations performed by these gentlemen.—(*Iowa-Nebraska Veterinary Bulletin*.)

## NEWS AND ITEMS.

BIRTH.—To Dr. and Mrs. Charles E. Clayton, New York, July 6, a daughter.

DR. WILLIAM H. MCINTOSH, veterinarian, died June 3, 1906, at Morristown, N. J.

FIVE VETERINARIANS took the civil service examination for meat inspectors at Chicago on April 18 and four did likewise on June 25.

DR. NELSON S. MAYO, Chief of the Cuban Bureau of Animal Industry, will be in attendance upon the New Haven meeting of the A. V. M. A.

DR. WM. HERBERT LOWE has been reappointed to the full term of three years on the New Jersey State Board of Veterinary Medical Examiners.

DR. ELISHU HANSHEW, of Brooklyn, has installed a new Humane Operating Table in his hospital at 125 Carlton Ave., supplanting an old-fashioned one.

DR. JOHN V. LADDEY, of Arlington, N. J., has bought the late Dr. McIntosh's practice at Morristown, N. J., and has moved to that place to practice his profession.

DR. WILLIAM HERBERT LOWE has passed the New Jersey State Examination for Sanitary Inspector of the first class and was licensed as such by the Board of Health on June 23.

RABIES has claimed many victims around New York this summer, not only dogs, but humans and large domestic animals. This should not be, where the Negri bodies can be so quickly discovered, and inoculation can so certainly prevent the development of the disease.

GLANDERS appears to be quite prevalent in New Jersey at present. Dr. Lowe was called from the Secretary's chair at the Asbury Park meeting of the Veterinary Medical Association of New Jersey to investigate an outbreak, where a comparatively large number of horses were found to be affected.

DRS. ROBERT W. ELLIS, George H. Berns, and Roscoe R. Bell, of New York, attended the Asbury Park meeting of the Veterinary Medical Association of New Jersey on July 12-13. Many of the members and visitors availed themselves of the opportunity to enjoy the delightful seaside resort by bringing along members of their families.

A VALUABLE KENTUCKY TROTTER MARE, owned by James McIntyre, an actor, summering at Bergen Beach, N. Y., was bitten by a mongrel dog, evidently suffering with rabies, was at-

tacked three weeks later with rabid symptoms, which rapidly developed until he struck, bit and chewed his fore-leg nearly off, seizing the wood work of his stall with his teeth, breaking them off down to the gums. After forty-eight hours of terrible suffering he was destroyed.

DR. S. H. GILLILAND, M. D., V. M. D., Bacteriologist for the State Live Stock Sanitary Board of Pennsylvania, is at present at Saranac Lake. As a result of hard work in connection with sickness and death in his family his health failed and he was compelled to take a much needed rest. His friends are pleased to learn that his health is improving and his physicians are hopeful that he will soon be restored to his usual good health.

HON. H. C. ADAMS, of Wisconsin, member of the House Committee on Agriculture, who was such a conspicuous figure in the recent fight on the Meat Inspection Bill, died at Chicago *en route* to his home. He had long hung to life through his indomitable will power, his health having been very bad for many years. He was the author of the "Adams Act," which doubled the annual governmental appropriation for the state experiment stations.

A WELL-KNOWN VETERINARY PATHOLOGIST is engaged in investigating azoturia, and has progressed sufficiently far to state that he has succeeded in reproducing the symptoms in large rabbits, including the characteristic paralytic knuckling in the hind legs, trembling of the flanks, dark-colored urine, and on post-mortem paleness of the gluteal muscular tissue. He has about passed his promise to give the profession a preliminary report upon his investigations at one of the early meetings of the Veterinary Medical Association of New York County. He is certainly advancing on a path that leads to glory, for practitioners will rise up and call him blessed if he succeeds in discovering the etiological factor, which will greatly aid in indicating both therapy and prophylaxy.

THE OFFICIAL VETERINARIANS OF THE HORSE SHOW ASSOCIATION OF AMERICA, who have held office year after year for more than a decade, were this year summarily removed and replaced by others. Those who were replaced are among the most prominent in this country, being men of high character and great experience. They are Drs. Wm. Sheppard, of Sheepshead Bay; Thomas G. Sherwood and J. Elmer Ryder, of New York City. No reason was assigned for the change, but rumor has it that it owes its occurrence to a difference of opinion between the veterinarians and a member of the Horse Show Com-



mittee, a layman, who placed his judgment against those of the official veterinarians, and took his revenge by securing their removal. It is said that the circumstances were as follows: A saddle horse called "Poetry of Motion," has a white face, and the skin was irregularly pigmented about the muzzle and nostrils, as is often seen in such horses. The official noticed this and called the attention of the veterinarians to it, suggesting that the animal was affected with variola, and should not be allowed to compete. Their decision was against him and the horse was shown and took one or more blue ribbons. Their places have been filled by the appointment of Dr. H. D. Gill and Dr. E. A. A. Grange, while the third member had not yet been decided on when this item was written. It is said that the position has been offered to Dr. Leonard Pearson, of Philadelphia.

\$94,000,000 IN AUTOMOBILES NOW ON THE SCRAP HEAP—80,000 CARS IN USE; 40,000 ABANDONED.—Statistics of automobile registrations published in the *Herald* a few days ago are full of interest to horsemen as throwing light on the lasting qualities of the latest mechanical substitute for the horse. These statistics show that up to June 1, 1906, 121,369 automobiles had been recorded in the United States since the laws compelling registration went into effect a few years ago. About forty thousand of these automobiles are now out of commission, according to the records of the Motor Directories Company, leaving something like eighty thousand in use if this estimate is to be relied on. It seems probable, however, that both the number registered and the number in use are overestimated, since it is a matter of common knowledge that very many machines—perhaps a majority of all those registered in some States—are registered in duplicate in two or more States, thus swelling the totals on the face of the returns far beyond the actual number existing. That the number "laid on the shelf" has been overestimated, or even fully estimated, by the automobile people themselves is not likely, to say the least. Taking the figures without question as they stand it must seem most surprising to disinterested observers of the development of the motor vehicle that out of 121,369 cars thus far registered 40,000, or practically one-third, are already on the scrap heap. When it is remembered that in New York, and probably in other States as well, the records show that nearly one-third of the whole number of cars registered have been running only about one year these figures become strikingly significant of the

short life of the average automobile. Registration figures in New York indicate that the selling price of the average automobile is about \$2,360. It will, therefore, be seen that the 40,000 machines thus far put out of commission represent something like \$94,400,000 in cost, if not in value, and this is exclusive of money paid out for repairs before the cars were finally abandoned. The American people are rich, and they have the name of being lavish if not extravagant in their expenditures, but it remains to be seen whether they will continue to foot the bills for automobiles at this rate after the novelty of the new toy has worn off. Expert horsemen and experienced carriage builders have all along maintained that the life of the automobile must be short, and the expense of keeping one necessarily very heavy, owing to the tremendous strain to which the delicate and intricate mechanism is subjected when driven at high speed over rough roads. They have predicted just what the records now seem to show, that the average automobile would not last more than one year, and that the cost of the machine, repairing it, keeping it and running it would prove to be too great for the general public to bear.—(*New York Herald*, July 22.)

WANTED—A GREAT VETERINARY SCHOOL.—Provision has been made in the packinghouse law for inspection that inspects. A very large force of capable inspectors will be required. We must have them. The eyes of the world are upon us, the international spotlight is turned toward us. The necessity exists for a great veterinary school in which men may be thoroughly qualified to inspect meats on the hoof and in the carcass—a school where all diseases common and uncommon among domesticated animals may be exhibited in the clinics and where students may obtain an education in animal husbandry such as they need to enable them to apply properly their knowledge of pathological conditions. The application of such knowledge has but half its use in the absence of a thorough accurate and extended knowledge of physiological conditions. We must have inspectors trained to their work. The Government calls for 400 of them now. Their work is in the stock yards of the country, and it is therefore plain that we should have men trained at the stock yards. The greatest stock yard plant in the world is in Chicago. It follows then that the place for this great veterinary school is at the Chicago yards. The Union Stock Yard & Transit Co. has ground to spare. It has funds. It has enterprise. It sees opportunities and grasps them. The

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International is a monument to its interest in the welfare of stockgrowers and it is not difficult to believe that if the need of a veterinary college at the yards were properly presented to the stock yards officials the result would be a building for a veterinary school greater than any in existence to-day and a faculty the like of which the world can not show. It is not generally known that the greatest veterinary school so far built is in Calcutta. Everything that the wealth of the greatest empire in the world and the intelligence of the brightest minds in the veterinary profession could devise has been lavished on that school in India, but the new American school should be greater still. No secondary place will serve the United States. A world's trade is at stake. We must have the school commensurate with the needs of the whole round globe. Disease takes strange forms. This is a wide country and many very different conditions, climatic and otherwise, are included in it. For years it has been the custom of men in the country to use the big stock yard markets as a dumping ground for every animal that was of no farther use to them. Comparatively few veterinarians engaged in a general country practice have ever seen such a varied assortment of diseases as may be seen any Thursday—"canner day"—in the Chicago yards. When a man's hogs begin to die off in an alarming manner he gets the drove to market just as quickly as he can. The great yards are used as dumping grounds. It may be possible in time to force men to dispose of diseased stock in the country, but that time will come about when they quit taking a chance or when the knowledge is forced upon them that diseased animals must be condemned and tanked and that all the shipper will get out of them will be the privilege of paying the freight and commission charges. A force of inspectors educated to an acquaintance with every detail of this traffic in diseased cattle, schooled by daily contact with all the clinical advantages offered in this market, would quickly teach shippers that the local disposition of diseased cattle would be far more advantageous, and then the problem would be largely solved. It is a fact, well known throughout the country, that some kind of a price can be obtained for diseased cattle at the big markets, and the cupidity of human nature will surely lead to the risk of getting caught in unloading such stock, especially if it is thought that the inspection is inadequate from lack of inspectors or inefficient by reason of their ignorance or want of experience. A certain means of diminishing the traffic in diseased stock is to put on watchmen who

have been educated for the specific purpose of such examinations and trained in the very arena in which they are to operate upon the completion of their education. Independent of these considerations—which in themselves are sufficient to claim the favorable attention of the Union Stock Yard Co.—is the fact that the opportunities for general clinical work are far greater at the Chicago stock yards than at any other point in the world. A medical education without clinical work is very lame. It is an imposition on the public to put out medical graduates to acquire experience at the expense of the pocketbooks or perhaps the lives of their patrons. The most conscientious of our young doctors serve their time as hospital internes and thus acquire valuable experience under the very best training. The Chicago yards, with their daily run of diseased stock, in a year's time sounding almost the entire gamut of the non-contagious diseases and including some not in that category, such as hog cholera, afford opportunity even more extensive and valuable than falls to the experience of the ordinary hospital interne. Vast improvement has been made in our veterinary practice the past decade. The "hoss-doctor," too often an undesirable as well as a costly type in a community, has been giving way gradually to educated young men who have made use of all the available opportunities in acquiring an education in veterinary medicine, but it is only too well known that there is much room for improvement in the courses and instruction in our veterinary colleges. The leaders of the profession acknowledge and lament this fact. They have made much progress toward the amendment of this condition, but much work remains to be done. Such schools are not money-makers. In fact some of them have gone as far in the perfection of their courses and instruction as their funds will possibly permit. If such a corporation as the stock yards company would erect a suitable building and provide an endowment sufficient to command superior talent in the faculty, such a school would soon become the Mecca for students the world over, as nowhere else are such opportunities available. Surely argument should not be necessary. We content ourselves with the presentation of these facts, confident that they will receive the most earnest consideration. Beyond shadow of doubt the founding of a great veterinary school at the yards would most surely and quickly counteract in the eyes of the world the evil consequences of the unfortunate handling of the meat inspection measure. (*Breeders' Gazette, July 11.*)

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## VETERINARY MEDICAL ASSOCIATION MEETINGS.

Secretaries are requested to see that their organizations are properly included in the following list.

| Name of Organization.            | Date of Next Meeting. | Place of Meeting      | Name and Address Secretary.         |
|----------------------------------|-----------------------|-----------------------|-------------------------------------|
| American V. M. Ass'n.....        | Aug. 21-24, '06       | N. Haven, Ct.         | J. J. Repp, Phila., Pa.             |
| Vet. Med. Ass'n of N. J.....     | .....                 | Jersey City.          | W. H. Lowe, Paterson.               |
| Connecticut V. M. Ass'n.....     | Call of President     | New Haven.            | B. K. Dow, Willimantic.             |
| New York S. V. M. Soc'y....      | Sept. 11-12-13        | Buffalo.              | G. T. Stone, Binghamton.            |
| Schuylkill Valley V. M. A....    | Dec. 19               | Reading.              | W. G. Huyett, Wernersville.         |
| Passaic Co. V. M. Ass'n.....     | Monthly.              | Paterson, N. J.       | H. K. Berry, Paterson, N. J.        |
| Texas V. M. Ass'n.....           | Call Exec. Com.       | .....                 | E. L. Lewis, Waxahachie.            |
| Massachusetts Vet. Ass'n.....    | Monthly.              | Boston.               | F. J. Babbitt, Lynn, Mass.          |
| Maine Vet. Med. Ass'n.....       | .....                 | .....                 | R. E. Freeman, Dexter.              |
| Central Canada V. Ass'n.....     | .....                 | Ottawa.               | A. E. James, Ottawa.                |
| Michigan State V. M. Ass'n....   | State Fair week       | Detroit.              | Judson Black, Richmond.             |
| Alumni Ass'n N. Y.-A. V. C....   | April, 1907.          | 141 W. 54th St        | W. C. Miller, N. Y. City.           |
| Illinois State V. M. Ass'n.....  | .....                 | .....                 | F. H. Barr, Pana.                   |
| Wisconsin Soc. Vet. Grad....     | Call of Pres't.       | Sheboygan.            | S. Beattie, Madison.                |
| Illinois V. M. and Surg. A....   | .....                 | Decatur.              | C. M. Walton, Rantoul.              |
| Vet. Ass'n of Manitoba.....      | Not Stated.           | Winnipeg.             | F. Torrance, Winnipeg.              |
| North Carolina V. M. Ass'n....   | .....                 | .....                 | T. B. Carroll, Wilmington.          |
| Ontario Vet. Ass'n.....          | .....                 | .....                 | C. H. Sweetapple, Toronto.          |
| V. M. Ass'n New York Co....      | Vacation.             | 141 W. 54th St        | D. J. Mangan, N. Y. City.           |
| Ohio State V. M. Ass'n.....      | .....                 | Columbus.             | W. H. Gribble, Wash'n C. H.         |
| Western Penn. V. M. Ass'n....    | 1st Wed. ea. mo       | Pittsburgh.           | F. Weitzell, Allegheny.             |
| Missouri Vet. Med. Ass'n.....    | .....                 | .....                 | F. F. Brown, Kansas City.           |
| Genesee Valley V. M. Ass'n....   | .....                 | .....                 | J. H. Taylor, Henrietta, N. Y.      |
| Iowa State V. M. Ass'n.....      | .....                 | .....                 | H. C. Simpson, Denison, Ia.         |
| Minnesota State V. M. Ass'n...   | .....                 | .....                 | C. A. Mack, Stillwater.             |
| Pennsylvania State V. M. A....   | Sept. 18              | Gettysburg            | C. J. Marshall, Philadelphia        |
| Keystone V. M. Ass'n.....        | 2d Tues. May          | Philadelphia.         | A. W. Ormeston, 102 Her-            |
| Colorado State V. M. Ass'n....   | 1st Mon. in June      | Denver.               | man St., Germantown, Pa.            |
| Missouri Valley V. Ass'n.....    | January, 1907         | Kan. City, Mo.        | M. J. Woodliffe, Denver.            |
| Rhode Island V. M. Ass'n....     | June and Dec.         | Providence.           | B. F. Kaupp, Kansas City.           |
| North Dakota V. M. Ass'n....     | .....                 | .....                 | T. E. Robinson, Westerly, R. I.     |
| California State V. M. Ass'n.... | Mch. Je. Sep, Dec     | San Francisco         | J. A. Winsloe, Cooperstown.         |
| Southern Auxiliary of Califor-   | .....                 | .....                 | C. H. Blemer, San Francisco.        |
| nia State V. M. Ass'n.....       | Jan. Apl. Jy, Oct.    | Los Angeles.          | J. A. Edmons, Los Angeles.          |
| South Dakota V. M. A.....        | .....                 | .....                 | E. L. Moore, Brookings.             |
| Nebraska V. M. Ass'n.....        | .....                 | .....                 | Hans Jensen, Weeping Water          |
| Kansas State V. M. Ass'n....     | Jan. 8-9, '07.        | Topeka.               | Hugh S. Maxwell, Salina.            |
| Ass'n Médecine Vétérinaire       | 1st & 3d Thur.        | Lect. R'm La-         | J. P. A. Houde, Montreal.           |
| Francaise "Laval,".....          | of each month.        | val Un'y Mon.         | .....                               |
| Alumni Association A. V. Col..   | April eachyr.         | New York.             | F. R. Hanson, N. Y. City.           |
| Province of Quebec V. M. A....   | .....                 | Mon. & Que.           | Gustave Boyer, Rigand, P. Q.        |
| Kentucky V. M. Ass'n.....        | .....                 | .....                 | D. A. Piatt, Lexington.             |
| Washington State Col. V. M. A.   | Monthly.              | Pullman, Wa.          | Wm. D. Mason, Pullman.              |
| Indiana Veterinary Association.  | .....                 | .....                 | E. M. Bronson, Indianapolis.        |
| Iowa-Nebraska V. M. Ass'n....    | .....                 | .....                 | A. T. Peters, Lincoln, Neb.         |
| Louisiana State V. M. Ass'n...   | .....                 | .....                 | E. P. Flower, Ba'on Rouge.          |
| Twin City V. M. Ass'n.....       | .....                 | .....                 | S. H. Ward, St. Paul, Minn          |
| Hamilton Co. (Ohio) V. A....     | .....                 | Cincinnati.           | Louis P. Cook, Cincinnati.          |
| Mississippi State V. M. Ass'n... | August, 1906.         | Agricultural College. | J. C. Robert, Agricultural College. |

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